CCD-TR530E/TR550E/TR570E/TR650E/TR750E

RMT-708

SERVICE MANUAL

AEP Model
CCD-TR530E/TR550E/TR650E/TR750E
UK Model
CCD-TR530E/TR550E/TR650E/TR750E
E Model
CCD-TR550E/TR500E/TR750E
Australian Model
CCD-TR550E/TR750E
Tourist Model
CCD-TR570E/TR750E

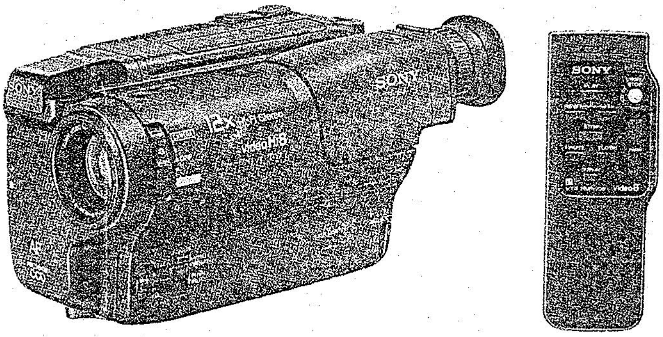


Photo : CCD-TR650E

Handycam

A MECHANISM

We will inform you of the electrical adjustment of the color view finder in the future.

In this service manual, board names will be different for each model and indicated as follows.

	TR570E/TR650E/TR750E	TR530E/TR550E
VS BOARD	VS-104 BOARD	VS-112 BOARD
PJ BOARD	PJ-61 BOARD	PJ-64 BOARD
DD BOARD	DD-60 BOARD	DD-60 BOARD
	TR650E/TR750E	**TR530E/TR550E/TR570E**
VC BOARD	VC-138 BOARD	VC-145 BOARD

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL Ⅳ" (9-973-199-11).

SPECIFICATIONS

System

Video recording system
Two rotary heads, Helical scanning, FM system

Audio recording system
Rotary heads, FM system

Video signal
PAL colour, CCIR standards

Usable cassette
8 mm video format cassette (Hi8 or standard 8 mm)

Tape speed
SP mode: Approx. 20.051 mm (13/16 in)/second
LP mode: Approx. 10.058 mm (13/32 in)/second

Recording time
SP mode: 1 hour and 30 minutes (E5/P5-90)

Playback time
SP mode: 1 hour and 30 minutes
LP mode: 3 hours (E5/P5-90)

Fastforward/rewind time
Approx. 6 min. 30 sec. (E5/P5-90)

Image devide
CCD (Charge Coupled Device)

Viewfinder
Electronic viewfinder (black and white)

Lens
See the table on the next page.

Focal distance
6.5 – 78 mm (9/32 – 3 1/8 inches) when recording
47 – 564 mm (1 7/8 – 22 1/4 inches) when converted into a 35 mm still camera

Colour temperature
Auto

Minimum illumination
See the table on the next page.

Illumination range
See the table on the next page.

Recommended illumination
More than 100 lx

Input and Output connectors

S video output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω, unbalanced, sync negative
Chrominance signal: 0.3 Vp-p, 75 Ω, unbalanced

Video output
Phono jack, 1 Vp-p, 75 Ω, unbalanced, sync negative

Audio output
Phono jacks (2 stereo L and R), –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

— Continued on next page —

8 VIDEO CAMERA RECORDER
CCD-TR530E/TR550E/TR570E

Hi8 VIDEO CAMERA RECORDER
CCD-TR650E/TR750E

MICROFILM

SONY®

RFU DC OUT
Special minijack, DC 5 V

Headphones jack
Stereo mini-jack (ø 3.5)

LANC jack
Stereo mini-mini-jack (ø 2.5)

MIC jack
Stereo mini-jack, −66 dBs, low impedance with 2.5 to 3 V DC output, impedance 6.8 kΩ (ø 3.5)

General

Power requirements
On battery mounting surface 6.0 V (battery pack), 7.5 V (AC power adaptor)

Average power consumption
See the table below.

Installation
Vertically, Horizontally

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
−20°C to +60°C (−4°F to +140°F)

Dimensions
See the table below.

Mass
See the table below.

Microphone
Electret condenser microphone, stereo type

Model	CCD-TR650E	CCD-TR750E	Notes
Lens	12 x	24 x (Digital) 12 x (Optical)	Combined power zoom lens, Filter diameter 37 mm (1 1/2 inches), TTL autofocus system inner focus wide macro system
Minimum illumination	4 lx	6 lx	F 1.8
Illumination range	4 to 100,000 lx	6 to 100,000 lx	—
Average power consumption	5.3 W	5.6 W	—
Dimensions	114 x 110 x 208 mm (4 1/2 x 4 3/8 x 8 1/4 inches)		w/h/d
Mass	900 g (1 lb 15 oz)	910 g (2 lb)	Excluding the battery pack, lithium battery, cassette and shoulder strap
Mass	1,120 g (2 lb 7 oz)	1,130 g (2 lb 7 oz)	Including the battery pack NP-55, lithium battery CR2025, cassette E5/P5-90 and shoulder strap

AC power adaptor

Power requirements
110 – 240 V AC, 50/60Hz

Power consumption
See the table below.

Output voltage
See the table below.

Application
Sony battery packs NP-55, NP-55H, NP-66H, NP-77H

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
−20°C to +60°C (−4°F to +140°F)

Dimensions
Approx. 103 x 49 x 63 mm (4 1/8 x 1 15/16 x 2 1/2 inches) including projecting parts and controls

Mass
See the table below.

Model	AC-V25	AC-V25A	AC-V25B	Notes
Power consumption	15 W	17 W	17 W	—
Output voltage	7.5 V, 1.2 A	7.5 V, 1.2 A	7.5 V, 1.5 A	DC OUT in operation mode
Mass	290 g (10 oz)	320 g (11 oz)	290 g (10 oz)	—

Design and specifications are subject to change without notice.

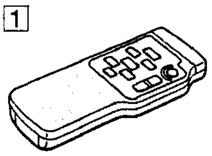
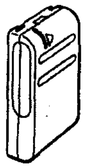
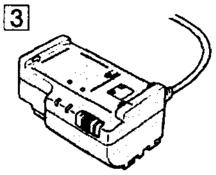
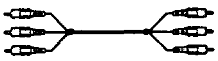
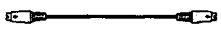
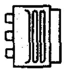
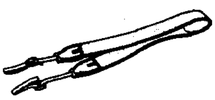
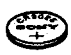
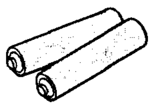
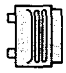
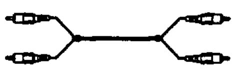
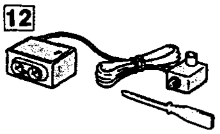
Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Note :

We will inform you of the specification of the CCD-TR530E/TR550E/TR570E in the future.

— Continued on next page —

Supplied accessories

1 	2 	3 	4  (CCD-TR570E/TR650E/TR750E)
5  (CCD-TR650E/TR750E)	6  (CCD-TR650E/TR750E (AEP, UK))	7 	8 
9 	10  (CCD-TR530E/TR550E (AEP, UK))	11  (CCD-TR530E/TR550E (AEP, UK, AUS, Tourist))	12  (CCD-TR550E(E)/TR570E(E)/ TR750E(E))

1 **Wireless Remote Commander (1)**

2 **NP-55 Battery Pack (1)**

3 **AC-V25/V25A/V25B AC power adaptor (1)**

4 **A/V connecting cable (1)**

5 **S video connecting cable (1)**

6 **21-pin adaptor (1)**

7 **Shoulder strap (1)**

8 **CR2025 Lithium Battery (1)**
Already installed in the camcorder.

9 **R6 (size AA) battery for Remote Commander (2)**

10 **21-pin adaptor (1)**

11 **A/V connecting cable (1)**

12 **RFU-95AE RFU adaptor with a screwdriver (1)**

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

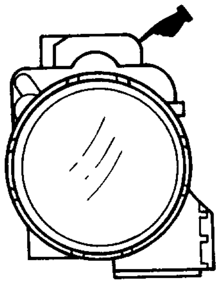
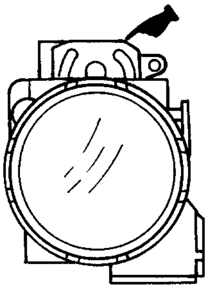
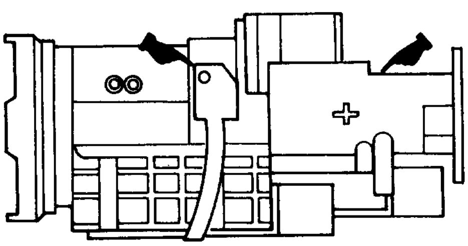
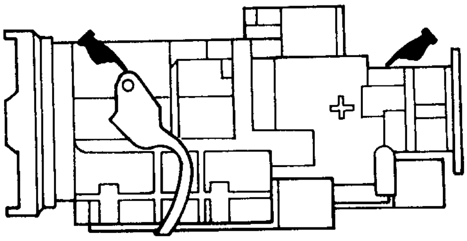
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

【Zoom lens】

This unit employs two types of lens.
Note that the lenses are interchangeable, however their components are not.

Differentiating the lens ☛ : difference point

TYPE I (LSV-140A)	TYPE II (VCL-5412WA)
From the front of the lens 	From the front of the lens 
From the right side of the lens (as seen from the front) 	From the right side of the lens (as seen from the front) 

SERVICE NOTE

[SEMICONDUCTOR FOR CORRECTION LIST DISPLAY]

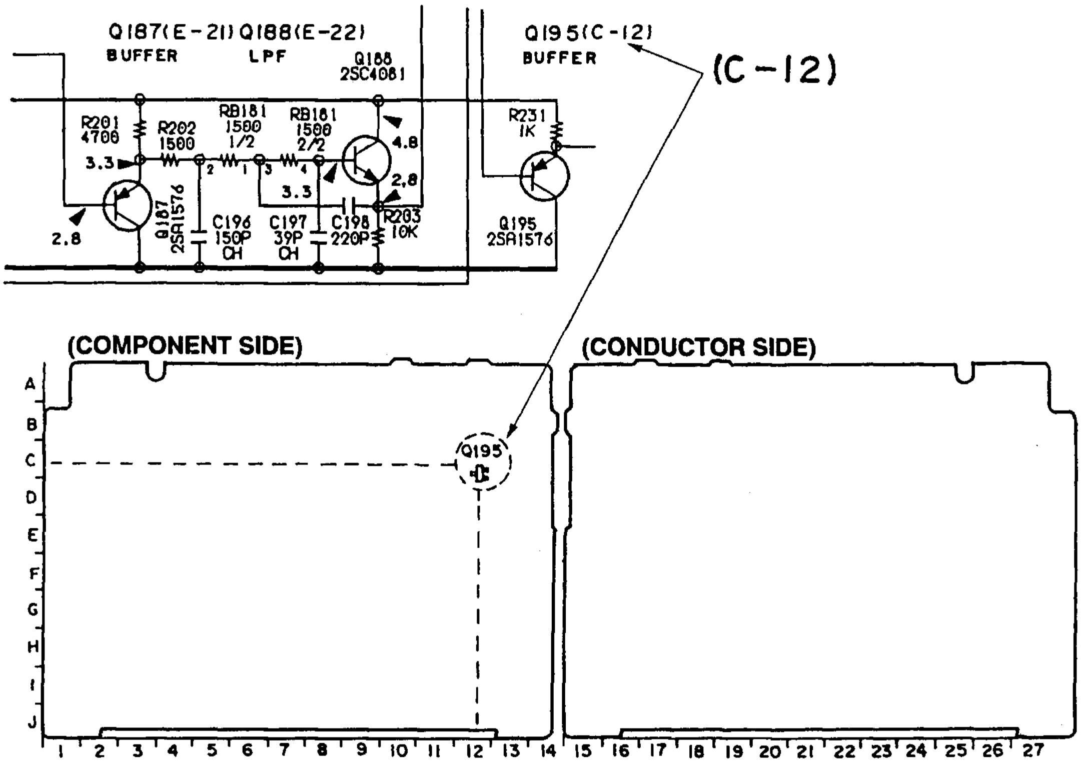
Part code and part name of the semiconductor for correction of the print board is discribed in the space of each print figure. Use this list when ordering parts.

[PARTS LOCATION DIAGRAM RELATED TO POWER SUPPLY]

The parts location diagram for the power supply which are often checked and replaced when repairing the fuse and IC link and so on. (See page 4–24, 4–34, 4–35, 4–77 and 4–79.)
This diagram is useful for repair.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red in schematic diagrams. This enables to find the location on the board easily when servicing.


Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
Q195(C-12)
BUFFER
(C-12)
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
4.8
3.3
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
R231
1K
Q195
2SA1576
(COMPONENT SIDE)
(CONDUCTOR SIDE)
Q195
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27

[HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

Check for Head Clogs During Recording

① Use a blank tape, record a short section, then press the stop button to stop.
② Set to recording mode again.
③ If the [✖] mark is flashing in the viewfinder at this time, head clogs are occurred.

Check During Playback of a Tape

① Play back a pre-recorded tape and display the image on a TV screen.
② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

Remedy

[Cleaning method using a cleaning tape]

- Use the Cleaning Tape. (Please follow the instructions attached to the cleaning tape.)

This section is extracted from
CCD-TR650E/TR750E instruction manual.

Checking Your Model Number

The instructions in this manual are for two models listed below. Before you start reading and operating, check your model number by looking at the bottom of your camcorder. The CCD-TR750E is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TR650E only".
As you read through this manual, buttons and settings on the camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.

Types of Differences

Model number	CCD-TR650E	CCD-TR750E
Zoom (X)	12	24 (Digital)
Exposure		○
Steady Shot		○
Backlight	○	
Display window		○

Comprobación del nombre de su modelo

Las instrucciones de este manual abarcan los dos modelos de la tabla siguiente. Antes de leer el manual y utilizar la videocámara, vea el nombre de su modelo en la base de la misma. Las ilustraciones de este manual son de la CCD-TR750E pero cuando sean de la otra, su nombre de modelo se indicará en la ilustración. Cualquier diferencia en cuanto a la operación, se indicará claramente en el texto, por ejemplo, "CCD-TR650E solamente".
Las teclas y ajustes de la videocámara aparecen en mayúsculas en todo el manual.
Ej. Ponga el selector POWER en CAMERA.

Diferencias en tipo

Nombre del modelo	CCD-TR650E	CCD-TR750E
Zoom (X)	12	24 (digital)
Exposición		○
Videofilmación estable		○
Contraluz	○	
Ventanilla visualizadora		○

Charging and Installing the Battery Pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC-V25/V25A/V25B AC power adaptor.

Charging the Battery Pack

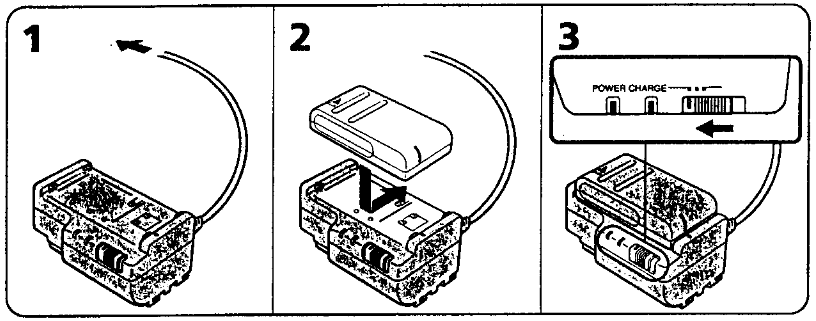
Charge the battery pack on a flat place without vibration.
(1) Connect the AC power adaptor to the mains. **(2)** Align the right side of the battery pack with the line on the AC power adaptor, then slide the battery pack in the direction of the arrow. **(3)** Set the selector to CHARGE. The POWER lamp (green) and the CHARGE lamp (orange) light up. Charging begins.
When charging is completed, the CHARGE lamp goes out. Set the selector to the centre position and unplug the unit from the mains. Then remove the battery pack and install it on the camcorder. To stop charging, set the selector to the centre position.

Carga y fijación de la batería

Antes de utilizar la videocámara, primero tendrá que cargar y colocar la batería. Para cargar la batería, utilice el adaptador de alimentación de CA AC-V25/V25A/V25B suministrado.

Carga de la batería

Cargue la batería en un lugar nivelado y exento de vibraciones.
(1) Conecte el adaptador de alimentación de CA a una toma de la red. **(2)** Alinee el lado derecho de la batería con la línea del adaptador de alimentación de CA, y después deslice la batería en el sentido de la flecha. **(3)** Ponga el selector en CHARGE. Las lámparas POWER (verde) y CHARGE (anaranjada) se encenderán y se iniciará la carga.
Cuando finalice la carga, la lámpara CHARGE se apagará. Ponga el selector en la posición central y desconecte la unidad de la toma de la red. Después quite la batería y fíjela a la videocámara. Para parar la carga, ponga el selector en la posición central.



Charging Time

Battery Pack	Charging time*
NP-55 (supplied)	70
NP-77H	160
NP-66H	120
NP-55H	80

* Approximate minutes to charge an empty pack using the AC-V25/V25A/V25B (Lower temperatures require a longer charging time.)

Tiempo de carga

Batería	Tiempo de carga*
NP-55 (suministrada)	70
NP-77H	160
NP-66H	120
NP-55H	80

* Minutos aproximados para cargar una batería agotada utilizando el AC-V25/V25A/V25B. (A bajas temperaturas, el tiempo de carga será más largo.)

Charging and Installing the Battery Pack

Battery Life

CCD-TR650E

Battery Pack	Typical recording time**	Continuous recording time***
NP-55	30	60
NP-77H	80	150
NP-66H	60	110
NP-55H	35	70

CCD-TR750E

Battery Pack	Typical recording time**	Continuous recording time***
NP-55	30	55
NP-77H	75	145
NP-66H	55	105
NP-55H	35	65

** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

*** Approximate continuous recording time indoors.

Important!

Use the battery completely before re-charging!

Before you recharge the battery, make sure the battery has been used up (discharged) completely.
Repeated charging while some capacity remains causes a lowering of battery capacity. However, the original battery capacity can be recovered if you use the battery completely and charge it fully again.

To use up the battery, remove the cassette and slide the POWER switch to CAMERA with the battery attached, and leave the camcorder until the 🔋 indicator and the red lamp flash rapidly in the viewfinder.

Carga y fijación de la batería

Duración de la batería

CCD-TR650E

Batería	Tiempo de vediofilmación típica**	Timpo de videofilmación continua***
NP-55	30	60
NP-77H	80	150
NP-66H	60	110
NP-55H	35	70

CCD-TR750E

Batería	Tiempo de videofilmación típica**	Tiempo de videofilmación continua***
NP-55	30	55
NP-77H	75	145
NP-66H	55	105
NP-55H	35	65

** Minutos aproximados cuando videofilme repitiendo el inicio/la parada de la grabación, el zoom y la conexión/desconexión de la alimentación. Es posible que la duración de la batería actual sea más corta.

*** Tiempo aproximado de videofilmación continua en interiores.

¡Importante!

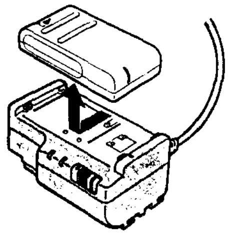
¡Utilice completamente la batería antes de recargarla!

Antes de recargar la batería. asegúrese de que la batería esté completamente agotada (descargada).
La carga repetida sin la batería completamente descargada hará que la capacidad de la misma disminuya. Sin embargo, será posible recuperar la capacidad original de la batería si la vuelve a utilizar y cargar por completo.

Para utilizar la batería completamente, extraiga el videocassette, deslice el selector POWER hasta CAMERA, y con la batería fijada deje la videocámara hasta que en el visor parpadeen rápidamente el indicador 🔋 y la lámpara roja.

Removing the Battery Pack

Slide the battery pack in the direction of the arrow.



Notes on charging the battery pack

- The POWER lamp will remain lit for a while even if the battery pack is removed and the mains lead is unplugged after charging the battery pack. This is normal.
- If the POWER lamp does not light, set the selector to the centre position and disconnect the mains lead. After about one minute, reconnect the mains lead and set the selector to CHARGE again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.

Para quitar la batería

Deslícela en el sentido de la flecha.

Notas sobre la carga de la batería

- Es normal que la lámpara POWER permanezca encendida durante un momento después de que haya quitado la batería y desconectado el cable de alimentación cuando finalice la carga.
- Si la lámpara POWER no se enciende, ponga el selector en la posición central y desconecte el cable de alimentación. Después de aproximadamente un minuto, vuelva a conectar el cable y a poner el selector en CHARGE.
- No podrá operar la videocámara empleando el adaptador de alimentación de CA mientras esté cargando la batería.

Charging and Installing the Battery Pack

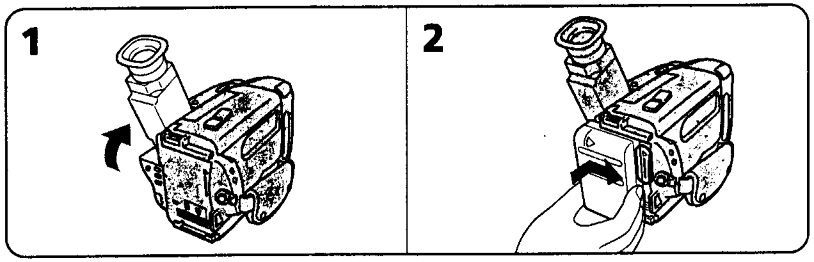
Carga y fijación de la batería

Installing the Battery Pack

(1) Lift up the viewfinder. **(2)** Align the right side of the battery pack with the white line on the camcorder, and slide the battery pack to the right.

Fijación de la batería

(1) Levante el visor. **(2)** Alinee el lado derecho de la batería con la línea blanca de la videocámara, y deslice la batería hacia la derecha.

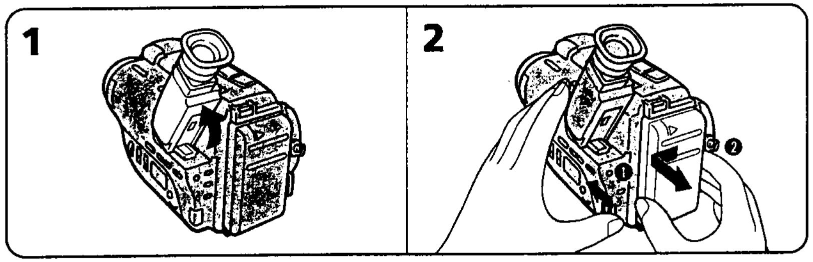


Removing the Battery Pack

(1) Lift up the viewfinder. **(2)** While pressing BATT, slide the battery pack to the left.

Para quitar la batería

(1) Levante el visor. **(2)** Manteniendo presionado BATT, deslice la batería hacia la izquierda.



Inserting a Cassette

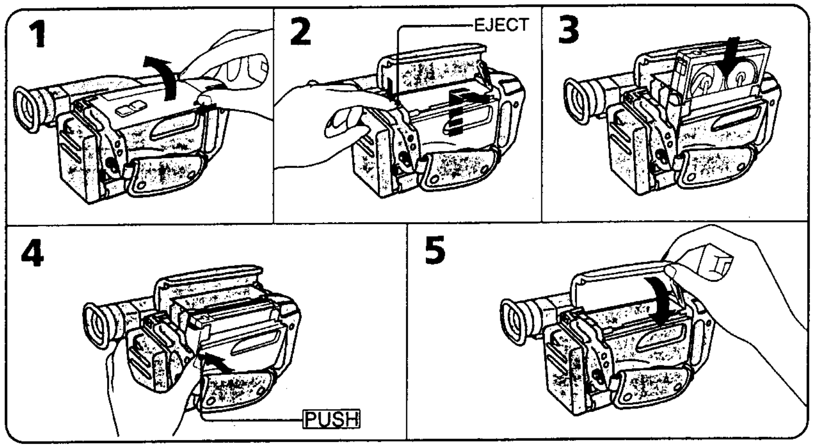
Inserción de un videocassette

Make sure that a power source is installed. When you want to record in the Hi8 system, use Hi8 video cassette **Hi8**.

(1) While sliding the lid lock, lift up the lid. Then open it. **(2)** Press EJECT. The cassette compartment automatically lifts up and opens. **(3)** Insert a cassette (not supplied) with the window facing out. **(4)** Press the PUSH mark on the cassette compartment to close it. The cassette compartment automatically goes down. **(5)** Close the lid until it locks.

Asegúrese de que haya una fuente de alimentación conectada a la videocámara. Para grabar en el sistema Hi8, utilice un videocassette Hi8 **Hi8**.

(1) Manteniendo deslizado el seguro, levante y abra la tapa. **(2)** Presione EJECT. El compartimiento del videocassette se elevará y abrirá automáticamente. **(3)** Inserte un videocassette (no suministrado) con la ventanilla hacia afuera. **(4)** Presione la marca PUSH en el compartimiento del videocassette para cerrarlo. El compartimiento se bajará automáticamente. **(5)** Cierre la tapa hasta que se enganche.



To Eject the Cassette

Press EJECT.

To Prevent Accidental Erasure

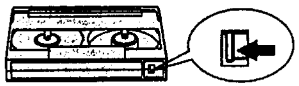
Slide the tab on the cassette to expose the red mark. If you try to record with the red mark exposed, the ⊠ and ⏏ indicators flash in the viewfinder, and you cannot record on the tape. To re-record on this tape, slide the tab back out to cover the red mark.

Para expulsar el videocassette

Presione EJECT.

Para prevenir el borrado accidental

Deslice la lengüeta del videocassette de forma que la marca roja quede al descubierto. Si intenta grabar con la marca roja al descubierto, en el visor parpadearán los indicadores ⊠ y ⏏, y no podrá grabar. Para volver a grabar en esta cinta, deslice la lengüeta de forma que se cubra la marca roja.



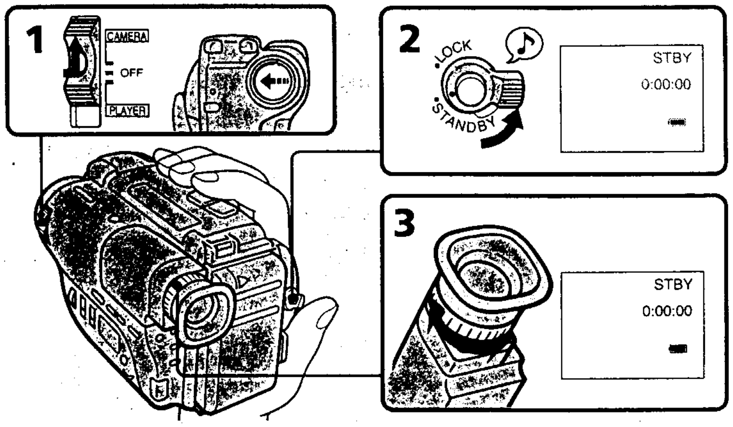
1-4

Adjusting the Viewfinder Lens

Ajuste de la lente del visor

Before you use the camcorder for the first time or after someone else has used it, focus the viewfinder lens. Make sure that the power source is connected to the camcorder.
(1) While pressing the small green button on the POWER switch, slide it to CAMERA. **(2)** Turn STANDBY up. **(3)** Turn the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus.

Antes de utilizar la videocámara por primera vez o después de haberla empleado otra persona, ajuste la lente del visor. Asegúrese de que haya una fuente de alimentación conectada a la videocámara.
(1) Manteniendo presionado el pequeño botón verde en el selector POWER, deslícelo hasta CAMERA. **(2)** Gire STANDBY hacia arriba.
(3) Gire el anillo de ajuste de la lente del visor hasta que los indicadores en el visor queden nítidamente enfocados.

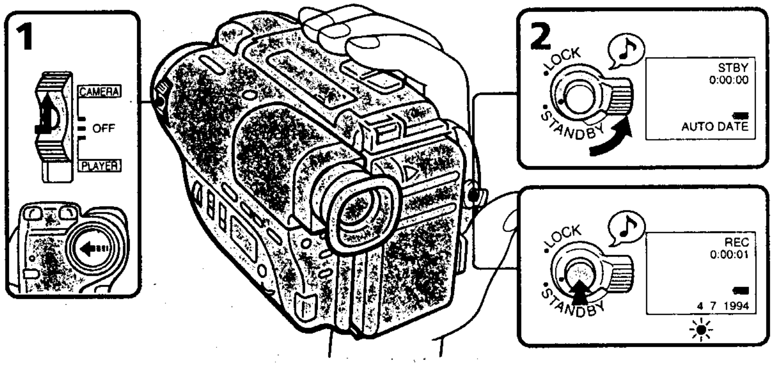


Camera Recording

Videofilmación

Make sure that a power source and a cassette is inserted. The date is automatically recorded for 10 seconds after you start recording (AUTO DATE feature). This feature works only once a day. You can hear the beep sound to confirm your operation. Before you record one-time events, you may want to make a trial recording to make sure that you are using the camcorder correctly.
(1) While pressing the small green button on the POWER switch, slide it to CAMERA. **(2)** Turn STANDBY up. **(3)** Press START/STOP. The camcorder starts recording and the "REC" indicator apperars in the viewfinder.

Asegúrese de que haya una fuente de alimentación conectada y un videocassette insertado. La fecha se grabará automáticamente durante 10 segundos a partir del inicio de la videofilmación [función AUTO DATE (grabación automática de la fecha)]. Esta función sólo trabajará una vez al día. Sonará un pitido para confirmar la operación. Antes de realizar videofilmaciones irrepetibles, se recomienda realizar una filmación de prueba a fin de comprobar si la videocámara funciona correctamente.
(1) Manteniendo presionado el pequeño botón verde en el selector POWER, deslícelo hasta CAMERA. **(2)** Gire STANDBY hacia arriba.
(3) Presione START/STOP. La videocámara comenzará a grabar y en el visor aparecerá el indicador "REC".



To Stop Recording Momentarily [a]

Press START/STOP again. The "STBY" indicator appears in the viewfinder (**Standby mode**).

To Finish Recording [b]

Press START/STOP. Turn STANDBY down, and set the POWER switch to OFF.
Then, eject the cassette (p.11).

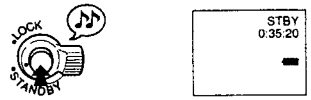
Para detener momentáneamente la grabación [a]

Presione otra vez START/STOP. En el visor aparecerá el indicador "STBY" (**Modo de espera**).

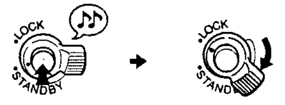
Para finalizar la grabación [b]

Presione START/STOP, gire STANDBY hacia abajo y ponga el selector POWER en OFF.
Después extraiga el videocassette (pág.11).

[a]



[b]



Note on Standby mode
If you leave the camcorder for 5 minutes or more with a cassette inserted in Standby mode, the camcorder goes off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down once and turn it up again. To start recording, press START/STOP.

Note on recording
When you record from the beginning of the tape, run the tape for about 15 seconds before actual recording. This prevents the camcorder from missing any start-up scenes when you play back the tape. You can record tapes in SP (standard play) mode only.

Note on the tape counter
The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET located below the viewfinder. You can know the approximate remaining tape by the remaining tape indicator (p.76).

Nota sobre el modo de espera
Si deja la videocámara en el modo de espera durante más de 5 minutos con el videocassette insertado, la videocámara se apagará automáticamente. Esto evitará que la batería y el videocassette se desgasten. Para restablecer el modo de espera, gire una vez STANDBY hacia abajo y después otra vez hacia arriba. Para comenzar a grabar, presione START/STOP.

Nota sobre la grabación
Cuando grabe desde el comienzo de la cinta, haga que ésta avance unos 15 segundos antes de comenzar la videofilmación actual. Esto evitará que se pierdan las escenas iniciales cuando se reproduzca la cinta. Usted podrá grabar cintas sólo en el modo SP (duración estándar).

Nota sobre el contador de la cinta
El contador de la cinta indicará el tiempo de grabación o reproducción. Empléelo como una guía. Es posible que exista una diferencia de varios segundos del tiempo real. Para ajustar el contador a cero, presione COUNTER RESET situada debajo del visor. Usted podrá saber la duración restante aproximada de la cinta con el indicador de la misma (pág.76).

Note on beep sound
As indicated with ♪ in the illustrations, a beep sounds when you turn the power on or when you start recording and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder (p.78). Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system (p.36).

Note on the AUTO DATE feature
The clock is set to London for the United Kingdom models and Paris for other European models at the factory. You can reset the clock (p.39, 47).
You can change the AUTO DATE setting by selecting ON or OFF in the menu system (p.36).

- The AUTO DATE feature works once a day. However, the date may automatically appear more than once a day when:
  - you reset the date and time.
  - you eject and insert the cassette again.
  - you stop recording within 10 seconds.
  - you set AUTO DATE to OFF once and set to ON in the menu system.
- Once the AUTO DATE feature turns off the date display 10 seconds after the start of recording, the date and time are displayed as follows:
  - if the date display setting has been made, the date is displayed.
  - if the time display setting has been made, the time is displayed.
  - if neither display setting has been made, nothing is displayed.

When moving from indoors to outdoors (or vice versa)
Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Nota sobre el pitido
Como se indica con la marca ♪ en las ilustraciones de este manual, cuando conecte la alimentación o cuando comience la videofilmación, sonará un pitido, y cuando pare la vidofilmación sonarán dos pitidos para confirmar la operación. También sonarán varios pitidos como advertencia de una condición anormal de la videocámara (pág.78). Tenga en cuenta que los pitidos no se grabarán en la cinta. Si no desea oír los pitidos, seleccione "OFF" en el sistema del menú (pág.36).

Notas sobre la función AUTO DATE
El reloj está ajustado en fábrica a la hora de Londres para los modelos destinados al Reino Unido y a la de París para otros modelos europeos. El reloj puede reajustarse (pág.39, 47).
También podrá cambiar el ajuste de AUTO DATE seleccionando ON u OFF en el sistema del menú (pág.36).

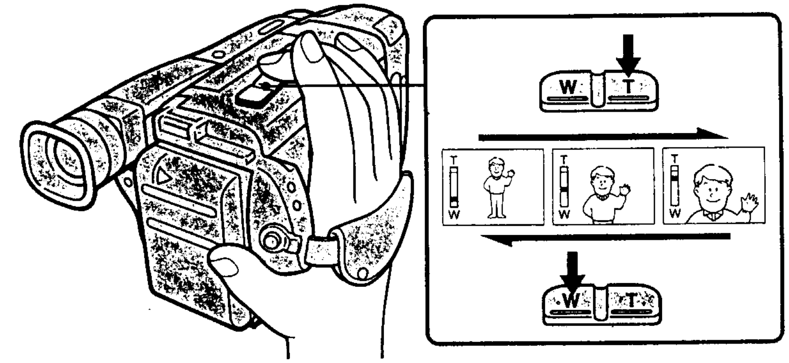
- La función AUTO DATE se activará una vez al día. Sin embargo, la fecha aparecerá automáticamente más de una vez al día cuando:
  - reajuste la fecha y la hora.
  - extraiga y vuelva a insertar el videocassette.
  - pare la grabación antes de 10 segundos.
  - ponga una vez AUTO DATE en OFF y después vuelva a ponerlo en ON en el sistema del menú.
- Una vez que haya desaparecido la fecha de AUTO DATE después de los 10 segundos del inicio de la grabación, la fecha y la hora se visualizarán en los casos siguientes:
  - cuando realice el ajuste de visualización de la fecha, se visualizará la fecha.
  - cuando realice el ajuste de visualización de la hora, se visualizará la hora.
  - si no realiza ningún ajuste, no se visualizará nada.

Cuando se mueva del interior al exterior (o viceversa)
Gire STANDBY hacia arriba y apunte con la videocámara hacia un objeto blanco durante unos 15 segundos de forma que el equilibrio del blanco se ajuste apropiadamente.

Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene. For more professional-looking recordings, use the zoom sparingly.

T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)



Zooming Speed

Press the power zoom button firmly for a high-speed zoom. Press it softly for a relatively slow zoom.

Empleo del zoom

El zoom es una técnica de videofilmación que le permite cambiar el tamaño del motivo en la escena. Para filmaciones de aspecto más profesional, utilice el zoom en forma limitada.

Lado T: para telefoto (el motivo se ve cercano)
Lado W: para gran angular (el motivo se ve lejano)

Velocidad del zoom

Presione a fondo la tecla del zoom motorizado para efectuar el zoom a gran velocidad y suavemente para hacerlo a una velocidad relativamente lenta.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, press the W side of the power zoom button until the focus is sharp.
You can shoot a subject that is at least 1 m (about 3.3 feet) away from the lens surface in the telephoto position, or 1 cm (about 1/ 2 inches) in the wide-angle position.

Notes on Digital Zoom (CCD-TR750E only)

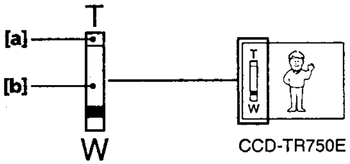
- More than 12 x zoom is performed digitally, and the picture quality deteriorates as you go toward the T side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system (p.36)
- The horizontal bar in the power zoom indicator separates the digital zooming zone (above the bar **[a]**) and the optical zooming zone (under the bar **[b]**). If you set the D ZOOM function to OFF, the part above the bar disappears.

Cuando videofilme un motivo empleando el acercamiento con el zoom

Si no puede enfocar nítidamente cuando videofilme con el zoom en el extremo del telefoto, presione el lado W de la tecla del zoom motorizado hasta enfocar nítidamente.
Usted podrá videofilmar un motivo que esté por lo menos a 1 m de la superficie del objetivo en la posición de telefoto, y a 1 cm en la de gran angular.

Notas sobre el zoom digital (CCD-TR750E solamente)

- Es posible realizar digitalmente el zoom de hasta 12 aumentos, y la calidad de la imagen se irá deteriorando a medida que se acerque hacia el lado T. Si no desea utilizar el zoom digital, ajuste la función D ZOOM a OFF en el sistema del menú (pág.36).
- La barra horizontal en el indicador del zoom motorizado separa la zona del zoom digital (arriba de la barra **[a]**) y la del zoom óptico (debajo de la barra **[b]**). Cuando ajuste la función D ZOOM a OFF, la parte superior de la barra desaparecerá.

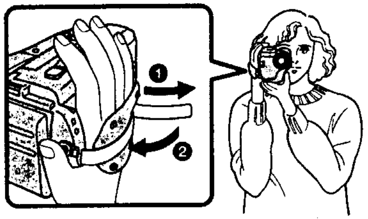


CCD-TR750E

Hints for Better Shooting

For hand-held shots, you'll get better results holding the camcorder according to the following suggestions:

[a]



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. **[a]**
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting recording angle. Turn the viewfinder up for recording from a low position. **[b]**

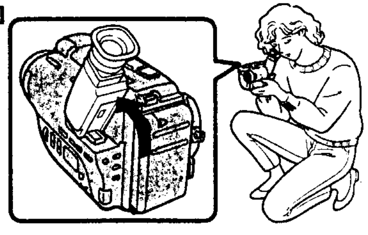
Place the camcorder on a flat surface or use a tripod.

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder (p.70). Make sure the tripod screw is shorter than 6.5 mm (9/32 in).

Consejos para videofilmar mejor

Para videofilmar con la videocámara en las manos, podrá obtener mejores imágenes sujetándola como se indica a continuación:

[b]



- Sujete la videocámara firmemente y asegúrela con la correa de la empuñadura de modo que pueda manipular fácilmente los controles con el pulgar. **[a]**
- Coloque su codo derecho firmemente contra su costado.
- Coloque su mano izquierda debajo de la videocámara para sostenerla.
- Apoye el ocular del visor de la videocámara firmemente contra su ojo.
- Para determinar el plano horizontal, utilice el cuadro del visor como referencia.
- Para obtener un ángulo de videofilmación interesante, usted también podrá grabar desde una posición baja. Para grabar desde una posición baja, gire el visor hacia arriba. **[b]**

Coloque la videocámara en una superficie plana o utilice un trípode

Pruebe colocando la videocámara sobre una mesa u otra superficie plana de altura adecuada. Si posee un trípode para cámara fotográfica, podrá emplearlo también con esta videocámara (pág.70). Asegúrese de que la longitud del tornillo del trípode sea inferior a 6,5 mm.

To Use the Viewfinder as a Sports Finder [c]

With the sports finder, you can monitor the picture while your eye is at a distance from the eyecup. The sports finder is convenient when moving around to shoot scenes. While sliding the viewfinder release knob to the left, flip open the viewfinder.

Cautions on the viewfinder

- Do not pick up the camcorder by the viewfinder. **[d]**
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder may be deformed. Be careful in placing the camcorder under sunlight or at the window. **[e]**

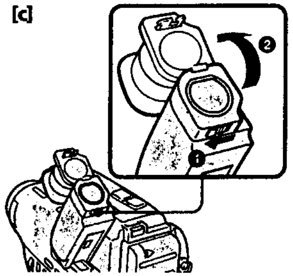
Para utilizar el visor como visor deportivo [c]

Con el visor deportivo, podrá ver las imágenes apartando el ocular del ojo. Es muy útil cuando videofilme moviéndose alrededor de la escena de videofilmación. Manteniendo deslizado el mando de liberación del visor hacia la izquierda, abra el visor.

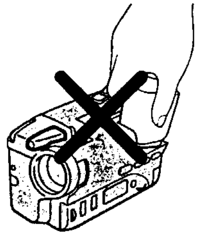
Precauciones sobre el visor

- No sujete la videocámara por el visor. **[d]**
- No deje la videocámara con el visor apuntando hacia el sol. Es posible que el interior del visor se deforme. Tenga cuidado al dejar la videocámara bajo el sol o cerca de una ventana. **[e]**

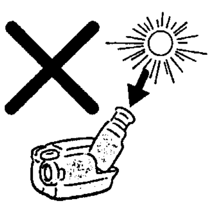
[c]



[d]



[e]



Checking the Recorded Picture

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder.

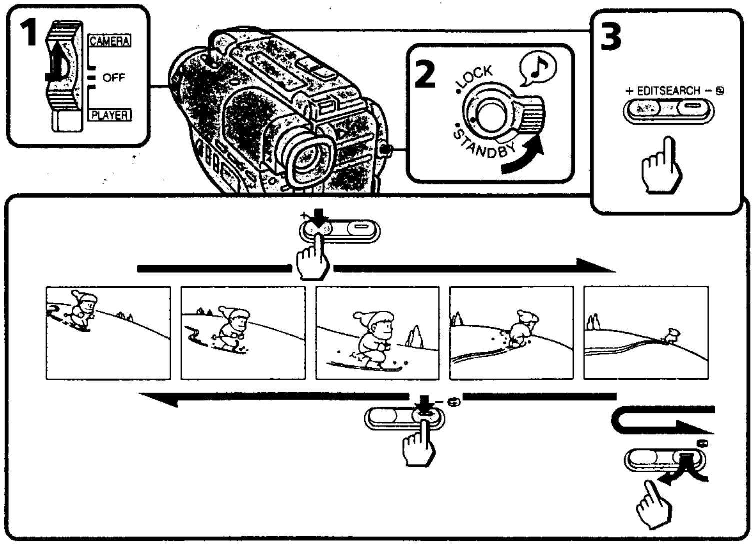
(1) While pressing the small green button on the POWER switch, slide it to CAMERA.

(2) Turn STANDBY up. **(3)** Press EDITSEARCH. Press the – (⊜) side momentarily, the last few seconds of the recorded portion plays back (**Rec Review**).

Keep pressing EDITSEARCH to play back the last recorded portion (**Edit Search**).

+ side: to view the forward playback picture

- side: to view the reverse playback picture



To Stop Playback

Release EDITSEARCH.

To Begin Re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth.

Verificación de las imágenes grabadas

Utilizando EDITSEARCH, usted podrá revisar la última escena grabada o comprobar la imagen grabada en el visor.

(1) Manteniendo presionado el pequeño botón verde en el selector POWER, deslícelo hasta CAMERA. **(2)** Gire STANDBY hacia arriba.

(3) Presione EDITSEARCH. Presione momentáneamente el lado – (⊜). Se reproducirán los últimos segundos de la parte filmada (**Revisión de la grabación**).

Mantenga presionada EDITSEARCH para reproducir la última parte grabada (**Búsqueda de edición**)

Lado +: para ver las imágenes en sentido progresivo

Lado –: para ver las imágenes en sentido regresivo

Para cesar la reproducción

Suelte EDITSEARCH.

Para reanudar la grabación

Presione START/STOP. La grabación se iniciará desde el punto en el que soltó EDITSEARCH. Mientras no extraiga el videocassette, la transición entre la última escena grabada y la siguiente será uniforme.

Monitoring the Sound While Viewing the Playback Picture in the Viewfinder

Connect headphones (not supplied) to the 🎧 jack. Play back the tape in PLAYER mode (p.22).

Para escuchar el sonido durante la contemplación de las imágenes reproducidas en el visor

Conecte unos auriculares (no suministrados) a la toma 🎧. Reproduzca la cinta en el modo PLAYER (pág.22).

Connections for Playback

You can use this camcorder as a VCR by connecting it to your TV for playback. It is recommended to use the mains as the power source (p.24).

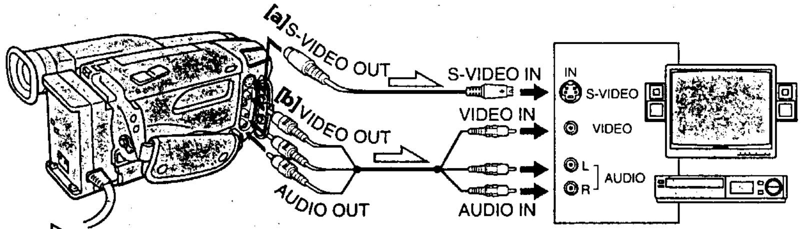
Connect the camcorder to your TV by using the supplied connecting cable. Set the TV/VCR selector to VCR on the TV. When connecting the camcorder to VCR, set the input selector on the VCR to LINE.

If you are going to connect the camcorder using the S video cable **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]**.

Conexiones para la reproducción

Para la reproducción, usted podrá utilizar esta videocámara para que funcione como videograbadora conectándola a su televisor. Se recomienda utilizar la corriente de la red como fuente de alimentación (pág.24).

Conecte la videocámara al televisor empleando el cable conector suministrado. Ponga el selector TV/VCR del televisor en VCR. Cuando conecte la videocámara a una videograbadora, ponga el selector de entrada de la videograbadora en LINE. Cuando conecte la videocámara empleando el cable de vídeo S **[a]**, no será necesario conectar la clavija amarilla (vídeo) del cable conector de audio/vídeo **[b]**.



: Signal flow/Flujo de la señal

If your TV or VCR is monaural type, connect only the white plug for audio on both the camcorder and the TV or the VCR. With this connection, the sound is monaural.

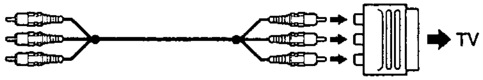
If your TV has a 21-pin connector (EUROCONNECTOR)

Use the supplied 21-pin adaptor.

Si su televisor o videograbadora es de tipo monoaural, conecte solamente la clavija blanca para audio a la videocámara y al televisor o la videograbadora. Con esta conexión el sonido será monoaural.

Si su televisor posee conector de 21 terminales (EUROCONNECTOR)

Utilice el adaptador de 21 terminales suministrado.

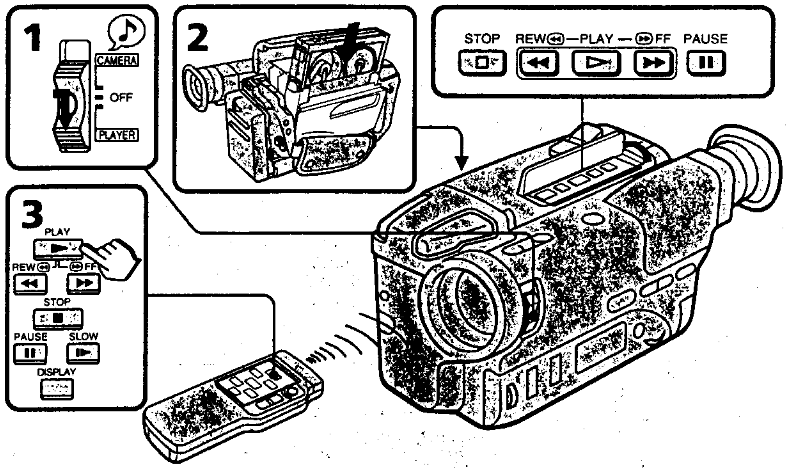


Playing Back a Tape

Reproducción de cintas

You can monitor the playback picture in the viewfinder. You can also monitor on the TV screen, after connecting the camcorder to the TV/ VCR (p.21). You can control playback using the supplied Remote Commander (p.74).
(1) While pressing the small green button on the POWER switch, slide it to PLAYER. **(2)** Insert the recorded tape with the window facing out.
(3) Press ▷. Playback starts.

Usted podrá ver las imágenes reproducidas en el visor y también en la pantalla de televisor si conecta la videocámara a un televisor o una videograbadora (pág.21). También podrá controlar la reproducción con el telemando suministrado (pág.74).
(1) Manteniendo presionado el pequeño botón verde en el selector POWER, deslícelo hasta PLAYER. **(2)** Inserte una cinta grabada con la ventanilla hacia afuera. **(3)** Presione ▷. Se iniciará la reproducción.



To stop playback, press □.
To rewind the tape, press ◀◀.
To advance the tape rapidly, press ▶▶.

Para cesar la reproducción, presione □.
Para rebobinar la cinta, presione ◀◀.
Para hacer que la cinta avance rápidamente, presione ▶▶.

Various Playback Modes

To view a still picture (playback pause)
Press II during playback. To resume playback, press II or ▷.

To locate a scene (Picture Search)
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture during fastforward or rewind (Skip Scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture in a sequence of stop-motion images
Press EDITSEARCH in playback pause mode. If you keep pressing EDITSEARCH, you can view the picture playback in the forward (+) or reverse (–) direction.

To view the picture at 1/5 speed (Slow Playback) (only with the Remote Commander)
Press I▶ on the Remote Commander during playback. To resume normal playback, press ▷. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

Notes on playback
- Streaks appear and the sound is muted in the various playback modes.
- When still picture mode lasts for 5 minutes or more, the camcorder automatically enters stop mode.

To display the viewfinder screen indicators on the TV
Press DISPLAY on the Remote Commander.
To erase the indicators, press DISPLAY again.

To select the monitor sound
Change the"HiFi SOUND" mode setting in the menu system (p.36)

Diversos modos de reproducción

Para ver una imagen fija (reproducción en pausa)
Presione II durante la reproducción. Para reanudar la reproducción, presione II o ▷.

Para localizar una escena (búsqueda de imágenes)
Mantenga presionada ◀◀ o ▶▶ durante la reproducción. Para reanudar la reproducción normal, suelte la tecla.

Para ver las imágenes a gran velocidad durante el avance rápido o el rebobinado (skip scan)
Mantenga presionada ◀◀ durante el rebobinado o ▶▶ durante el avance de la cinta. Para reanudar la reproducción normal, presione ▷.

Para ver una secuencia de imágenes fijas
Presione EDITSEARCH en el modo de reproducción en pausa. Si la mantiene presionada, podrá ver las imágenes en el sentido progresivo (+) o regresivo (–).

Para ver la imagen a velocidad 1/5 de la normal (reproducción a cámara lenta) (sólo con el telemando)
Presione I▶ del telemando durante la reproducción. Para reanudar la reproducción normal, presione ▷. Si la reproducción a cámara lenta dura más de aproximadamente 1 minuto, ésta cambiará automáticamente a la reproducción normal.

Notas sobre la reproducción
- En los diversos modos de reproducción aparecerán franjas y el sonido se silenciará.
- Cuando el modo de imagen fija dure 5 minutos o más, la videocámara pasará automáticamente al modo de parada.

Para visualizar los indicadores de la pantalla del visor en el televisor
Presione DISPLAY del telemando. Para borrar los indicadores, vuelva a presionar DISPLAY.

Para seleccionar el sonido de escucha
Cambie el ajuste de "HiFi SOUND" en el sistema del menú (pág.36).

Advanced Operations

Using Alternate Power Sources

You can choose any of the following power sources for your camcorder: battery pack (P.7), the mains, and 12/24 V car battery. Choose the appropriate power source depending on where *you want to use your camcorder.*

Place	Power source	Accessory to be used
Indoors	The mains	AC power adaptor AC-V25/V25A/V25B (supplied), AC-S10
Outdoor	Battery pack	Battery pack NP-55 (supplied), NP-77H, NP-66H, NP-55H
In the car	12 V or 24 V car battery	DC pack DCP-77

Using the Mains

To use the supplied AC-V25/V25A/V25B AC power adaptor:
(1) Lift up the viewfinder. **(2)** Connect the mains lead to a wall outlet. Connect the bottom of the AC power adaptor to the battery mounting surface of the camcorder. **(3)** Set the selector to VTR (DC OUT).

Operaciones avanzadas

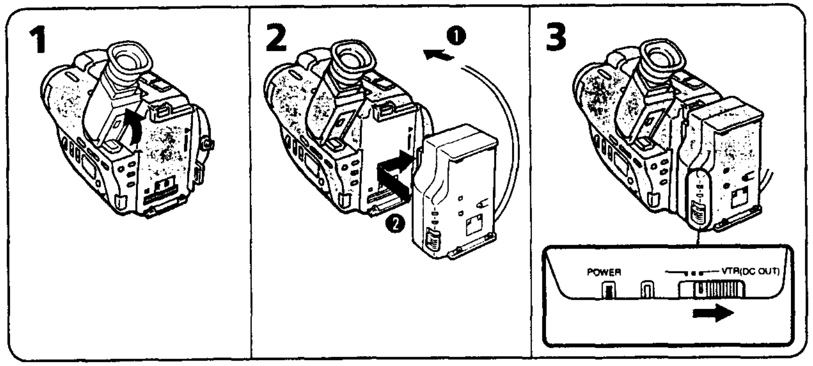
Utilización de fuentes de alimentación alternativas

Con esta videocámara podrá elegir cualquiera de las siguientes fuentes de alimentación: batería (pág.7), corriente de la red, y batería de un automóvil de 12/24 V. Elija la fuente de alimentación apropiada de acuerdo con el lugar donde desee utilizar la videocámara.

Lugar	Fuente de alimentación	Accesorio necesario
Interiores	Corriente de la red	Adaptador de alimentacióin de CA AC-V25/V25A/V25B (suministrado), AC-S10
Exteriores	Batería	Batería NP-55 (suministrada), NP-77H, NP-66H, NP-55H
En un automóvl	Batería de automóvil de 12 V o 24 V	Paquete de CC DCP-77

Utilización con la corriente de la red

Para utilizar el adaptador de alimentación de CA AC-V25/V25A/V25B suministrado:
(1) Levante el visor. **(2)** Conecte el cable de alimentación a una toma de la red, y la base del adaptador de alimentación de CA a la superficie de montaje de la batería de la videocámara.
(3) Ponga el selector en VTR (DC OUT).



WARNING
Mains lead must only be changed at qualified service shop.

PRECAUTIONS
The set is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Notes on the POWER lamp
- The POWER lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the POWER lamp does not light, set the selector to the centre position and disconnect the mains lead. After about one minute, reconnect the mains lead and set the selector to VTR (DC OUT) again.

To remove the adaptor
The adaptor is removed in the same way as the battery pack. (p.10)

Using a Car Battery

Use the DCP-77 DC pack (not supplied). Connect the cord of the DC pack to the cigarette lighter socket of a car (12 V or 24 V). Connect the DC pack to the battery mounting surface of the camcorder.

Options for Charging the Battery Pack

AC-S10 AC power adaptor:
You can charge a battery pack whether it is used up or not with this adaptor because it has a discharging function.

ADVERTENCIA
El cable de alimentación de la red deberá cambiarse solamente en una estación de servicios cualificado.

PRECAUCIÓN
Este aparato no se desconectará de la fuente de alimentación de CA (red) mientras esté enchufado en una toma de la misma, incluso aunque haya desconectado su alimentación.

Notas sobre la lámpara POWER
- Es normal que esta lámpara permanezca encendida durante un momento aunque desenchufe la unidad después de utilizarla.
- Cuando la lámpara POWER no se encienda, ponga el selector en la posición central y desconecte el cable de alimentación. Aproximadamente un minuto después, vuelva a conectar el cable de alimentación y a poner el selector en VTR (DC OUT).

Para quitar el adaptador
Quítelo igual que la batería (pág.10).

Utilización con la batería de un automóvil

Emplee un paquete de CC DCP-77 (no suministrado). Conecte el cable del paquete de CC a la toma del encendedor de cigarrillos de un automóvil (12 o 24 V). Conecte el paquete de CC a la superficie de montaje de la batería de la videocámara.

Opciones para cargar la batería

Adaptador de alimentación de CA AC-S10:
Como este adaptador posee función de descarga, usted podrá cargar la batería independientemente de que ésta se haya agotado o no.

Recording with the Date or Time

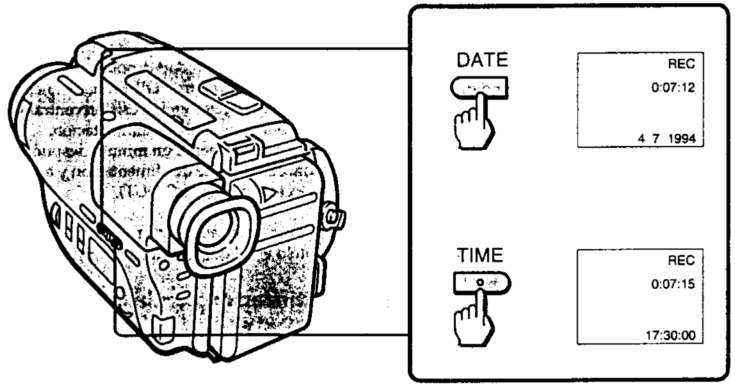
Grabación de la fecha o la hora

Before you start recording, press DATE or TIME. You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.

The clock is set to London for the United Kingdom models and Paris for other European models at the factory.

Antes de comenzar la videofilmación, presione DATE o TIME. Usted podrá grabar con las imágenes la fecha o la hora visualizada en el visor. La fecha y la hora no podrán grabarse al mismo tiempo. Además de los indicadores de la fecha y la hora, no se grabará ninguno de los demás indicadores del visor.

El reloj ha sido ajustado en fábrica a la hora de Londres para los modelos destinados al Reino Unido y a la de París para los demás modelos europeos.



To Stop Recording with the Date or Time

Press DATE or TIME again. Recording continues.

Para cesar la grabación de la fecha o la hora

Vuelva a presionar DATE o TIME. La grabación de las imágenes continuará.

Fade-in and Fade-out

Aumento gradual y desvanecimiento

You can fade in or fade out to give your recording a professional appearance. When fading in, the picture will gradually appear from black or mosaic. The sound will also gradually increase. When fading out, the picture will gradually fade to black or mosaic. The sound will also decrease.

When Fading in [a]

(1) During the camcorder is in Standby mode, press FADER. The fade indicator starts flashing. **(2)** Press START/STOP to start recording. The fade indicator stops flashing.

When Fading out [b]

(1) During recording, press FADER. The fade indicator starts flashing. **(2)** Press START/STOP to stop recording. The fade indicator stops flashing and recording stops.

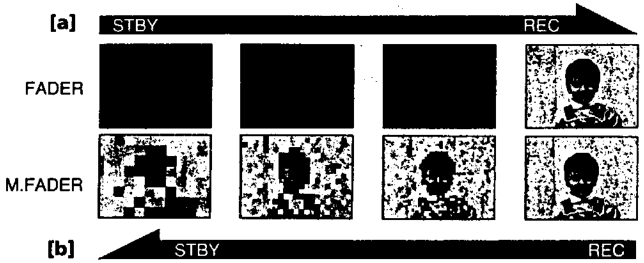
Usted podrá aumentar o desvanecer una imagen para dar a su videofilmación un aspecto profesional. Cuando realice el aumento gradual, la imagen aparecerá gradualmente desde un fondo negro o mosaico mientras que el sonido también aumenta gradualmente. Cuando realice el desvanecimiento, la imagen desaparecerá gradualmente hasta convertirse en una pantalla negra o mosaico mientras disminuye el sonido.

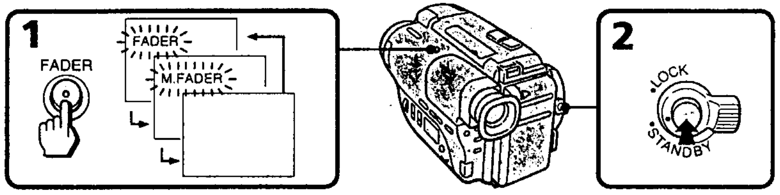
Aumento gradual [a]

(1) Mientras la videocámara esté en el modo de espera, presione FADER. El indicador de aumento gradual/desvanecimiento comenzará a parpadear. **(2)** Presione START/STOP para iniciar la videofilmación. El indicador dejará de parpadear.

Desvanecimiento [b]

(1) Durante la videofilmación, presione FADER. El indicador de aumento gradual/desvanecimiento comenzará a parpadear. **(2)** Presione START/STOP para parar la videofilmación. El indicador dejará de parpadear y la grabación cesará.





To Cancel the Fade-in/out Function

Before pressing START/STOP, press FADER once or twice until the fade indicator disappears.

When the date/time indicator is displayed

The date/time does not fade in nor fade out.

Para cancelar la función de aumento gradual/desvanecimiento

Antes de presionar START/STOP, presione una o dos veces FADER hasta que desaparezca el indicador de aumento gradual/desvanecimiento.

Cuando se visualice el indicador de la fecha/hora

Estos indicadores no aumentarán gradualmente ni se desvanecerán.

Focusing Manually

Enfoque manual

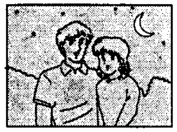
When to Use Manual Focus

Use manual focus under the following conditions:

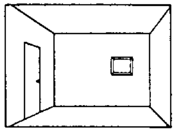
Cuándo utilizar el enfoque manual

En los casos siguientes enfoque manualmente.

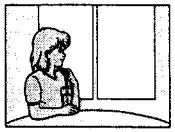
[a]



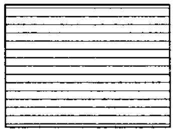
[b]



[c]



[d]



- Insufficient light **[a]**
- Subjects with little contrast— walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Bright subject or subject reflecting light
- Shooting a stationary subject when using a tripod

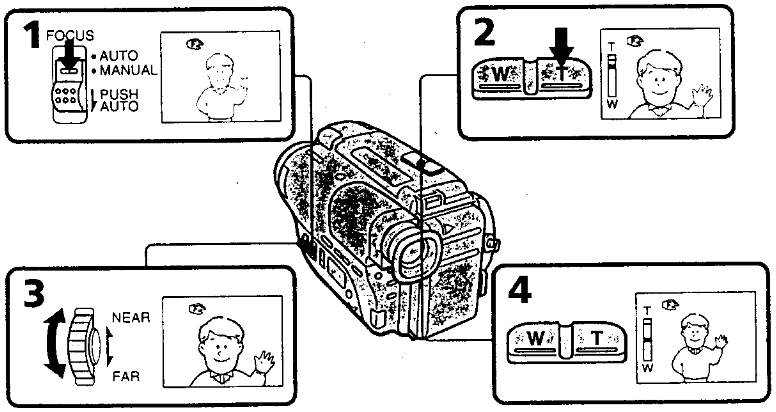
- Luz insuficiente **[a]**
- Motivos con poco contraste — paredes, cielo, etc. **[b]**
- Demasiado brillo detrás del motivo **[c]**
- Rayas horizontales **[d]**
- Motivos situados detrás de un vidrio empañado
- Motivo brillante o que refleja luz
- Cuando videofilme un motivo estacionario utilizando un trípode

Focusing Manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length. **(1)** Set FOUCS to MANUAL. The ⊛ indicator appears in the viewfinder. **(2)** Keep pressing the "T" (telephoto) side of the power zoom button until the zooming stops. **(3)** Turn the focus dial to achieve a sharp focus. **(4)** Set the desired shot length.

Enfoque manual

Cuando ajuste manualmente el enfoque, ajuste primero a la posición de telefoto antes de filmar y después ajuste la distancia de videofilmación. **(1)** Ponga FOCUS en MANUAL. En el visor aparecerá el indicador ⊛. **(2)** Mantenga presionado el lado "T" (telefoto) de la tecla del zoom motorizado hasta que el zoom se detenga. **(3)** Gire el dial de enfoque hasta enfocar nítidamente. **(4)** Ajuste la distancia de videofilmación deseada.



To Reactivate Auto Focusing

Set FOCUS to AUTO. The focus indicator in the viewfinder disappears.

Shooting in relatively dark places

Shoot at wide angles after focusing in telephoto.

Note on the focus dial

The focus dial does not have a stop positon.

Shooting with Auto Focusing Momentarily

While shooting with manual focusing, press FOCUS down (PUSH AUTO).

When you release, manual focusing will resume. Use this switch when focusing on one object to the other for natural focusing.

Para reactivar el enfoque automático

Ponga FOCUS en AUTO. El indicador de enfoque desaparecerá del visor.

Videofilmación en lugares relativamente oscuros

Videofilme en gran angular después de haber enfocado en telefoto.

Nota sobre el dial de enfoque

El dial de enfoque es de giro sin fin.

Videofilmación con enfoque automático momentáneo

Durante la videofilmación con enfoque manual, presione FOCUS hacia abajo (PUSH AUTO).

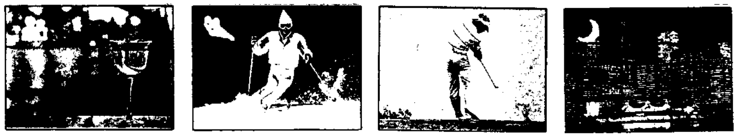
Cuando suelte FOCUS, se reanudará la videofilmación con enfoque manual. Utilice este selector para enfocar en forma natural un motivo a otro.

Using the PROGRAM AE Function

You can select from four PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can get a Portrait effect (the subject is in focus and the background is out of focus), capture high-speed action or night views.

Selecting the Best Mode

Select the best mode by using the following examples.



Portrait mode
- A still subject such as a person or flower
- Subject behind an obstacle such as a net
- Zooming in on a subject in telephoto

Sports mode
- Outdoor sports scenes such as football, tennis, golf or skiing
- A landscape in a moving car

High-speed shutter mode
- A golf swing or a tennis match in fine weather with the ball captured clearly
- Playing back certain scenes with high-speed movements in clear, sharp picture

Twilight mode

Recording night views neon signs or fireworks

Empleo de la función PROGRAM AE

Usted podrá seleccionar entre cuatro modos de PROGRAM AE (exposición automática programada), de acuerdo con la condición de videofilmación. Con la función de PROGRAM AE, podrá obtener un efecto de "Retrato" (el motivo enfocado y el fondo desenfocado), captar una acción a gran velocidad o grabar vistas nocturnas.

Selección del modo apropiado

Seleccione el modo apropiado consultando los siguientes ejemplos.

Modo de retrato
- Un motivo fijo como una persona o una flor
- Un motivo detrás de un obstáculo como una red
- Aumentar un motivo en el modo de telefoto

Modo de deportes
- Videofilmación de escenas de deportes de exteriores como fútbol, tenis, golf o esquí
- Videofilmación de paisajes desde un automóvil en marcha

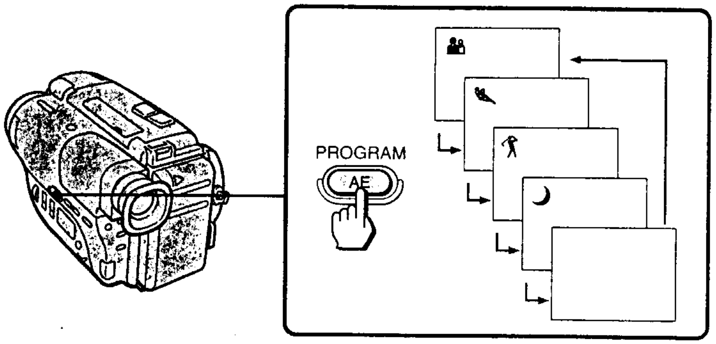
Modo de obturación a alta velocidad
- Un swing de golf o un partido de tenis en un día claro con la pelota visualizada claramente
- Reproducir ciertas escenas con movimientos a gran velocidad en una imagen clara y nítida

Modo de crepúsculo

Videofilmación de vistas nocturnas, letreros de neón o fuegos artificiales.

Using the PROGRAM AE Function

Press PROGRAM AE repeatedly so that the desired mode indicator appears inside the viewfinder.



Note on shutter speed

The shutter speed in each PROGRAM AE mode is as follows:
Portrait mode – between 1/50 to 1/2000
Sports mode – between 1/50 to 1/500
High-speed shutter mode – 1/4000
Twilight mode – 1/50

Empleo de la función PROGRAM AE

Presione repetidamente PROGRAM AE de forma que en el visor aparezca el indicador del modo deseado.

Nota sobre la velocidad de obturación

La velocidad de obturación en cada modo PROGRAME AE es el siguiente:
Modo de retrato – entre 1/50 y 1/2000
Modo de deportes – entre 1/50 y 1/500
Modo de obturación a alta velocidad – 1/4000
Modo de crepúsculo – 1/50

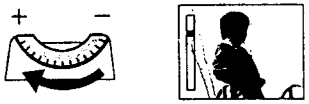
Adjusting the Exposure

— For model with the EXPOSURE button (CCD-TR750E only)

When to Adjust the Exposure

Adjust the exposure manually under the following cases.

[a]



[a] Turn the exposure dial to + when:
- The background is too bright (backlighting)
- Insufficient light: most of the picture is dark

[b] Turn the exposure dial to – when:
- Bright subject and dark background
- To record the darkness faithfully

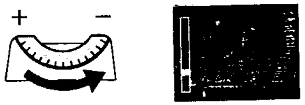
Ajuste de la exposición

— Para el modelo que dispone de la tecla EXPOSURE (CCD-TR750E solamente)

Cuándo ajustar la exposición

En los casos siguientes, ajuste manualmente la exposición.

[b]

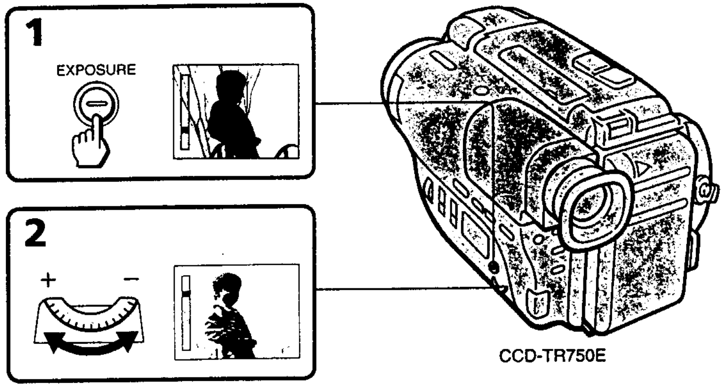


[a] Gire el dial de exposición hacia + cuando:
- El fondo es demasiado brillante (contraluz)
- Iluminación insuficiente: la mayor parte de la imagen es oscura.

[b] Gire el dial de exposición hacia – cuando:
- El motivo es brillante y el fondo oscuro
- Desea videofilmar bien en la oscuridad

Adjusting the Exposure

(1) Press EXPOSURE. The exposure indicator appears in the viewfinder. The exposure is locked at the actual brightness. **(2)** Turn the exposure dial to adjust the exposure. The exposure is locked at the adjusted brightness.



To Return to Automatic Exposure Mode

Press EXPOSURE.

Shooting with the sun behind you
If the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark
We recommend you to use the video light (not supplied). To get the best colour, you must maintain a sufficient light level.

Ajuste manual de la exposición

(1) Presione EXPOSURE. En el visor aparecerá el indicador de exposición, y la exposición se mantendrá ajustada al brillo actual. **(2)** Ajuste la exposición girando el dial de exposición. La exposición se mantendrá ajustada al brillo establecido.

Para volver al modo de exposición automática

Presione EXPOSURE.

Videofilme con el sol a su espalda
Si videofilma una escena con la fuente de iluminación detrás del motivo o con las siguientes condiciones, éste se grabará demasiado oscuro.
- El motivo está en interiores y existe una ventana detrás de él.
- La escena incluye fuentes de luz brillantes.
- Cuando videofilme una persona vestida de blanco o brillante frente a un fondo blanco. En este caso, el rostro se grabará demasiado oscuro.

Videofilmación en un lugar oscuro
Se recomienda utilizar una lámpara para vídeo (no suministrada). Para conseguir el mejor color, deberá mantener el nivel de iluminación suficiente.

Shooting with Backlighting

— For model with the BACK LIGHT button (CCD-TR650E only)

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT.

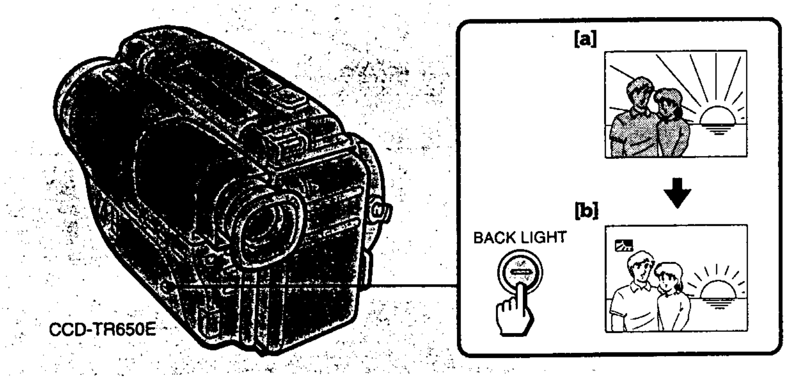
Press BACK LIGHT. The ▨ indicator appears inside the viewfinder.

Videofilmación a contraluz

— Para el modelo que dispone de la tecla BACK LIGHT (CCD-TR650E solamente)

Cuando videofilme un motivo con la fuente de iluminación detrás de él o a contraluz, utilice BACK LIGHT.

Presione BACK LIGHT. En el visor aparecerá el indicador ▨.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After shooting

Press BACK LIGHT again to let the ▨ indicator go out under normal lighting condition. Otherwise, the picture will be too bright under normal lighting condition.

This function is also effective under following conditions:

- On the snow e.g. at the ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

[a] El motivo está demasiado oscuro debido al contraluz.
[b] El motivo se ve claro con la compensación del contraluz.

Después de la videofilmación

Vuelva a presionar BACK LIGHT de forma que desaparezca el indicador ▨ con la iluminación en la condición normal. De lo contrario, las imágenes se grabarán demasiado brillantes con la iluminación en condición normal.

Esta función también será efectiva en las siguientes condiciones:

- Paisaje de nieve, por ej. en un campo de esquí.
- En una playa con luz solar fuerte.
- Un motivo con una fuente de iluminación cercana o un espejo que refleje luz.
- Un motivo blanco contra un fondo blanco. Especialmente cuando videofilme una persona vestida con ropa brillante como de seda o fibra sintética sin utilizar la función BACK LIGHT, el rostro tenderá a grabarse oscuro.

Releasing the Steady Shot Function

— For the model with the STEADY SHOT switch (CCD-TR750E only)

When you shoot, the ((◎)) indicator appears in the viewfinder. This indicates that the Steady Shot function is working and the camcorder compensates for camera-shake.

You can release the Steady Shot function. Do not use the Steady Shot function such as when shooting stationary object with a tripod.

Set STEADY SHOT to OFF.

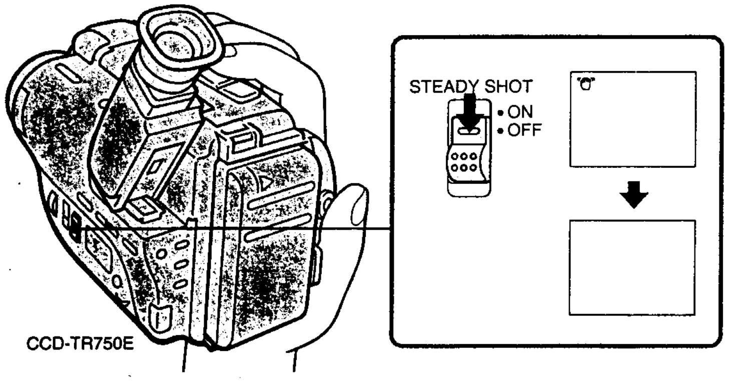
Desactivación de la función de videofilmación estable

— Para el modelo que dispone del interruptor STEADY SHOT (CCD-TR750E solamente)

Cuando videofilme, en el visor aparecerá el indicador ((◎)). Esto señalará que la función de videofilmación estable está activada y la videocámara está compensando los sacudidos de la misma.

La función de videofilmación estable puede desactivarse. No la emplee p.ej. cuando videofilme un objeto estacionario con un trípode.

Ponga STEADY SHOT en OFF.



To Activate the Steady Shot Function Again

Set STEADY SHOT to ON.

Notes on the Steady Shot Function

- The Steady Shot function will not correct excessive camera-shake.
- When you switch the STEADY SHOT, the exposure may vary.

Para volver a activar la función de videofilmación estable

Ponga STEADY SHOT en ON.

Notas sobre la función de videofilmación estable

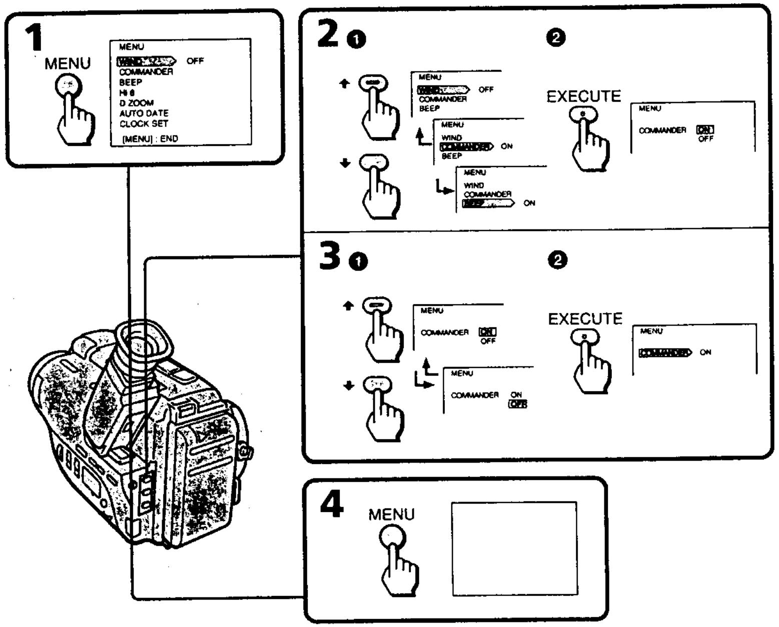
- La función de videofilmación estable no podrá corregir sacudidos excesivos.
- Cuando cambie STEADY SHOT, es posible que la exposición varíe.

Changing the Mode Settings

You can change the mode settings in the menu system to further enjoy the features and functions. **(1)** Press MENU to display the menu in the viewfinder. **(2)** Press ↑ or ↓ to select the desired item, then press EXECUTE. **(3)** Press ↑ or ↓ to set the desired mode, then press EXECUTE. If you want to change the other modes, repeat steps 2 and 3. **(4)** Press MENU to erase the menu display.

Cambio de los ajustes de modo

Usted podrá cambiar los ajustes de modo en el sistema del menú para disfrutar más de las funciones de la videocámara.
(1) Presione MENU para visualizar el menú en el visor. **(2)** Presione ↑ o ↓ para seleccionar el ítem deseado y después presione EXECUTE.
(3) Presione ↑ o ↓ para seleccionar el modo deseado, y después presione EXECUTE. Cuando desee cambiar otros ítems, repita los pasos 2 y 3.
(4) Presione MENU para borrar la visualizacón del menú.



Note on BACK UP

When BACK UP indicator appears on the menu display, the settings of items are retained even when the battery is removed, as long as the lithium battery is in place.

Nota sobre BACK UP

Cuando el indicador BACK UP aparezca en la visualización del menú, los ajustes de los ítems se mantendrán aunque quite la batería mientras esté colocada la pila de litio.

Selecting the Mode Setting of Each Item

Common Items in CAMERA and PLAYER Modes

COMMANDER <ON/OFF>

- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander for the camcorder.

BEEP <ON/OFF>

- Select ON so that beeps sound when you start/stop recording.
- Select OFF when you do not want to hear the beep sound.

Items in CAMERA mode

Hi8 <AUTO/OFF>

- Normally select AUTO to have the camcorder automatically set the recording mode (Hi8 or standard 8mm) depending upon cassette type being used.
- Select OFF to record a Hi8 tape in standard 8mm format. See page 49 for details about cassette types.

D ZOOM <ON/OFF> (CCD-TR750E only)

- Select ON to activate digital zooming.
- Select OFF otherwise. The zooming ability becomes 12 x.

WIND <ON/OFF>

- Select ON to reduce wind noise when recording in strong wind.
- Normally select OFF.

AUTO DATE <ON/OFF>

- Select ON to record the date of recording automatically (AUTO DATE feature p.15).
- Select OFF otherwise.

CLOCK SET

Select this item when you need to reset the clock (p.47).

See the next page for further information.

Selección de los ajustes de modo en cada ítem

Ítems comunes en los modos CAMERA y PLAYER

COMMANDER <ON/OFF>

- Seleccione ON cuando desee emplear el telemando suministrado para controlar la videocámara.
- Seleccione OFF cuando no vaya a emplear el telemando suministrado.

BEEP <ON/OFF>

- Seleccione ON para oír el pitido cuando comience o pare la videofilmación.
- Seleccione OFF si no desea oír el pitido.

Ítems en el modo CAMERA

Hi8 <AUTO/OFF>

- Normalmente seleccione AUTO para que la videocámara elija automáticamente el modo de grabación (Hi8 u 8mm estándar) de acuerdo con el tipo de videocassette empleado.
- Seleccione OFF para grabar una cinta de Hi8 en el formato de 8mm estándar. Con respecto a los tipos de videocassettes, consulte la página 49.

D ZOOM <ON/OFF> (CCD-TR750E solamente)

- Seleccione ON para activar el zoom digital.
- En caso contrario, seleccione OFF. La capacidad del zoom es de 12 aumentos.

WIND <ON/OFF>

- Seleccione ON para reducir el ruido del viento durante la videofilmación con viento fuerte.
- Normalmente seleccione OFF.

AUTO DATE <ON/OFF>

- Seleccione ON para que la fecha de la grabación se grabe automáticamente (función AUTO DATE, pág.15).
- En caso contrario, seleccione OFF.

CLOCK SET

Seleccione este ítem cuando sea necesario reajustar el reloj (pág.47).

Para más información, consulte la página siguiente.

Changing the Mode Settings

AREA
Select the area number of the time zone where you will use the camcorder when you use the world clock (p.39).

SUMM. TIME <ON/OFF>

- Select ON to set the clock to Summer Time.
- Select OFF to set to standard time.

Items in PLAYER mode

EDIT <ON/OFF>

- Select ON to minimize the picture deterioration when editing.
- Normally select OFF.

HiFi SOUND <STEREO/1/2>

- Normally select STEREO.
- Select 1 or 2 to play back a dual soundtrack tape.

Cambio de los ajustes de modo

AREA
Para emplear el reloj mundial, seleccione el número de área de la zona horaria donde vaya a utilizar la videocámara (pág.39).

SUMM.TIME <ON/OFF>

- Seleccione ON para ajustar el reloj a la hora de verano.
- Seleccione OFF para ajustarlo a la hora estándar

Ítems en el modo PLAYER

EDIT <ON/OFF>

- Seleccione ON para mantener al mínimo la degradación de la imagen durante la edición.
- Normalmente seleccione OFF.

HiFi SOUND <STEREO/1/2>

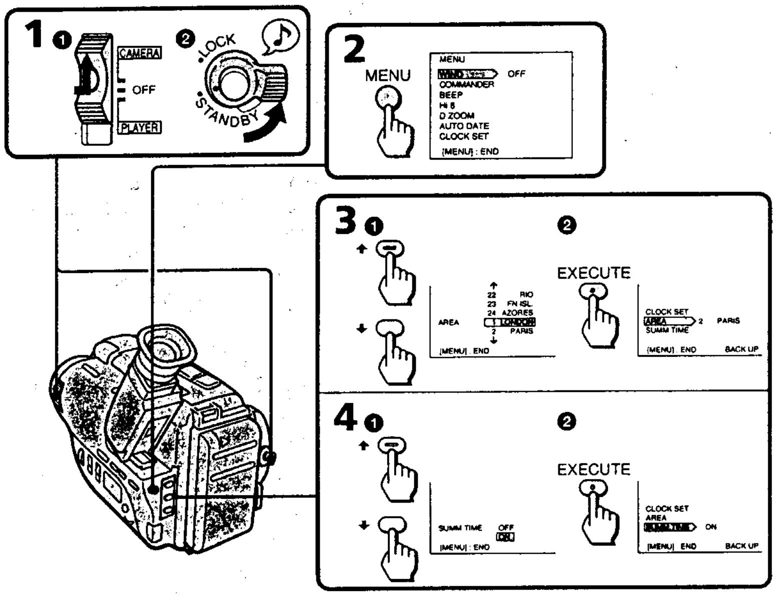
- Normalmente seleccione STEREO.
- Seleccione 1 o 2 para reproducir una cinta grabada con sonido doble.

Using the World Clock

Reset the clock according to the local time zone by setting AREA and SUMM. TIME modes in the menu system. First find the area number in the "Time zone chart" on page 41.
(1) Turn STANDBY up. **(2)** Press MENU to display the menu. **(3)** Select AREA item (p.38). Press ↑ or ↓ to select the area number where you will use the camcorder. Press EXECUTE.
(4) Select SUMM. TIME item (p.38). Press ↑ or ↓ to select ON: for Summer Time or OFF: for standard time. Press EXECUTE.

Utilización del reloj mundial

Reajuste el reloj de acuerdo con la zona horaria local ajustando los modos de AREA y SUMM. TIME en el sistema del menú. Primero busque el número de área en la "Tabla de zonas horarias" de la página 42.
(1) Gire STANDBY hacia arriba. **(2)** Presione MENU para visualizar el menú. **(3)** Seleccione el ítem AREA (pág.38). Presione ↑ o ↓ para seleccionar el número de área donde vaya a utilizar la videocámara. Presione EXECUTE.
(4) Seleccione el ítem SUMM. TIME (pág.38). Presione ↑ o ↓ para seleccionar ON: para la hora de verano u OFF: para la hora estándar. Presione EXECUTE.

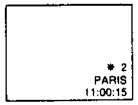

1 ❶
CAMERA
OFF
PLAYER
❷ LOCK
STANDBY
2
MENU
MENU
OFF
COMMANDER
BEEP
Hi 8
D ZOOM
AUTO DATE
CLOCK SET
[MENU] : END
3 ❶
↑
↓
AREA
22 RIO
23 FN ISL.
24 AZORES
1 LONDON
2 PARIS
[MENU] : END
❷
EXECUTE
CLOCK SET
AREA 2 PARIS
SUMM TIME
[MENU] : END BACK UP
4 ❶
↑
↓
SUMM TIME OFF
ON
[MENU] : END
❷
EXECUTE
CLOCK SET
AREA
SUMM TIME ON
[MENU] : END BACK UP

See the next page for further information.

Para más información, consulte la página siguiente.

Changing the Mode Settings

The area name appears in the viewfinder when using the world clock. The ✹ indicator appears in the viewfinder when setting to Summer Time.



To Check the Date

Press DATE. To turn off the date indicator, press DATE again.

To Restore to Your Home Area Time

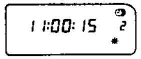
Reset the AREA mode in the menu system to your home area number.

See page 41 for the Time Zone Chart.

Cambio de los ajustes de modo

Cuando utilice el reloj mundial, aparecerá el nombre de área en el visor. Cuando ajuste a la hora de verano, aparecerá el indicador ✹ en el visor.

CCD-TR750E



Para verificar la fecha

Presione DATE. Para apagar el indicador de la fecha, vuelva a presionar DATE.

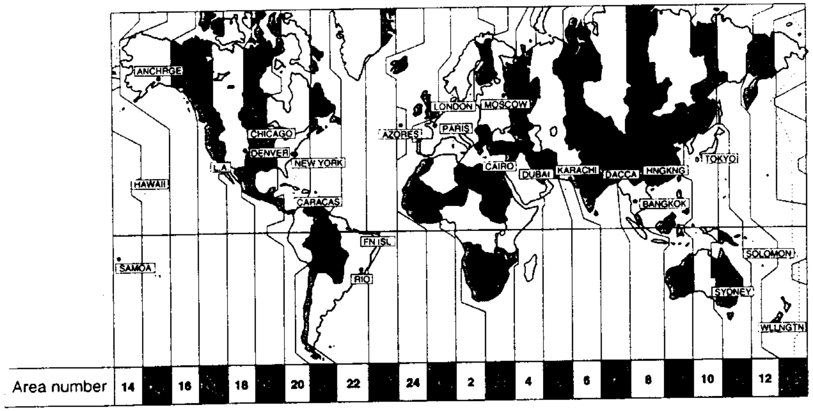
Para volver a la hora de su país de residencia

Reajuste el modo de AREA en el sistema del menú para que aparezca el número de área de su país de residencia.

Con respecto a la tabla de zonas horarias, consulte la página 42.

Changing the Mode Settings

Time Zone Chart



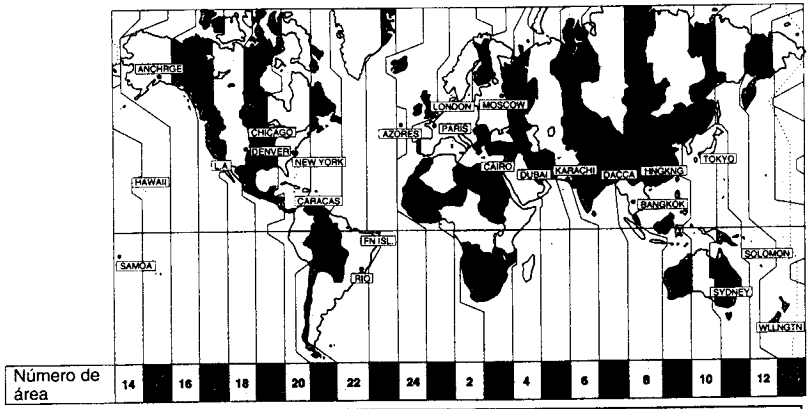
Area number	Area name	Nations or area*
1	LONDON	England, GMT (Greenwich Mean Time), Morocco, Portugal
2	PARIS	Austria, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland, CET
3	CAIRO	Egypt, Finland, Greece, Israel, Turkey
4	MOSCOW	Ehiopia, Iraq, Kenya, Saudi Arabia, former U.S.S.R. (west)
5	DUBAI	United Arab Emirates
6	KARACHI	Maldives, Pakistan
7	DACCA	Bangladesh, Myanmar
8	BANGKOK	Cambodia, Indonesia (Jakarta), Thailand, Vietnam
9	HNGKNG	Australia (west), China, Hong Kong, Indonesia (Bali, Borneo), Malaysia, Philippines, Singapore, Taiwan
10	TOKYO	Japan, Korea
11	SYDNEY	Australia (east), Guam, Saipan
12	SOLOMON	New Caledonia
13	WLLNGTN	Fiji, New Zealand
14	SAMOA	Western Samoa
15	HAWAII	Hawaii I., Tahiti, HST (Hawaii Standard Time)
16	ANCHRGE	U.S.A. (Alaska), AST, (Alaska Standard Time)
17	L.A.	U.S.A. (Los Angeles, San Francisco), PST (Pacific Standard Time)
18	DENVER	U.S.A. (Denver), MST (Mountain Standard Time)
19	CHICAGO	Mexico, U.S.A. (Chicago), CST (Central Standard Time)
20	NEWYORK	Canada (Montreal), Jamaica, Peru, U.S.A. (New York, Washington D.C), EST (East Standard Time)
21	CARACAS	Chili, Dominica, Venezuela
22	RIO	Argentina, Brazil, Uruguay
23	FN ISL.	Fernando de Noronha
24	AZORES	Azores Islands

* These are common names. They may be different from formal country names.

Español

Cambio de los ajustes de modo

Tabla de zonas horarias



Número de área	Nombre de área	Países o áreas*
1	LONDON	GMT (hora del meridiano de Greenwich), Inglaterra, Marruecos, Portugal
2	PARIS	Alemania, Austria, CET (hora de Europa central), España, Francia, Holanda, Italia, Suecia, Suiza
3	CAIRO	Egipto, Finlandia, Grecia, Israel, Turquía
4	MOSCOW	Arabia Saudita, Etiopía, Iraq, Kenia, antigna Unión Soviética (oeste)
5	DUBAI	Unión de Emiratos Árabes
6	KARACHI	Maldivas, Pakistán
7	DACCA	Bangladesh, Myanmar
8	BANGKOK	Cambodia, Indonesia (Yakarta), Tailandia, Vietnam
9	HNGKNG	Australia (oeste), China, Filipinas, Hong Kong, Indonesia (Bali, Borneo), Malasia, Singapur, Taiwan
10	TOKYO	Corea, Japón
11	SYDNEY	Australia (este), Guam, Saipan
12	SOLOMON	Nueva Caledonia
13	WLLNGTN	Fiji, Nueva Zelanda
14	SAMOA	Samoa Occidental
15	HAWAII	HST (hora normalizada hawaiana), Is. Hawaii, Tahití
16	ANCHRGE	AST (hora normalizada de Alaska), EE.UU. (Alaska)
17	L.A.	EE.UU. (Los Ángeles, San Francisco), PST (hora normalizada del pacífico)
18	DENVER	EE.UU. (Denver), MST (hora normalizada de las montañas)
19	CHICAGO	CST (hora normalizada central), EE.UU. (Chicago), México
20	NEWYORK	Canadá (Montreal), EE.UU. (Nueva York, Washington D.C.), EST (hora normalizada de la Costa Oriental), Jamaica, Perú
21	CARACAS	Chile, Dominica, Venezuela
22	RIO	Argentina, Brasil, Uruguay
23	FN ISL.	Fernando de Noronha
24	AZORES	Islas Azores

* Estos son los nombres corrientes. La denominacin formal puede ser distinta.

Editing onto Another Tape

You can create your own video programme by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC, or B Betamax VCR that has video/audio inputs.

Before Editing

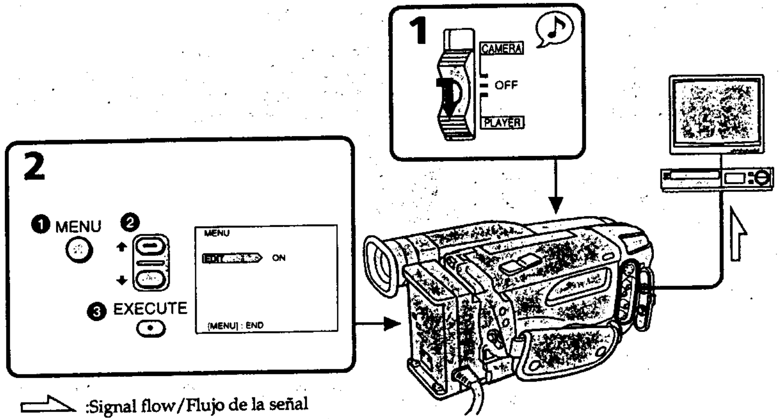
After connecting the camcorder to the VCR, **(1)** Slide the POWER switch to PLAYER. **(2)** Set EDIT mode to ON in the menu system to minimise the picture deterioration (p.36).

Edicón en otra cinta

Usted podrá crear su propio programa de vídeo editando con una videograbadora de formato de 8mm 8, 8mm de Hi8 Hi8, VHS VHS, S VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC o Betamax B que disponga de entradas de vídeo/audio.

Antes de la edición

Después de conectar la videocámara a la videograbadora,
(1) Deslice el selector POWER hasta PLAYER.
(2) Ajuste el modo de EDIT a ON en el sistema del menú para mantener al mínimo el deterioro de la imagen (pág.36).



:Signal flow/Flujo de la señal

Starting Editing

(1) Insert a blank tape (or a tape you want to record over) into the recording VCR. Then insert your recorded tape into the camcorder. **(2)** Play back the recorded tape on the camcorder until you locate the point where you want to start editing. Then set the camcorder to playback pause mode. **(3)** Set the recording VCR to recording pause mode. **(4)** Press ❚❚ on the camcorder and VCR simultaneously to start editing.

See the next page for further information.

Edición

(1) Inserte un videocassette en blanco (o una cinta en la que desee realizar la regrabación) en la videograbadora y la cinta grabada en la videocámara. **(2)** Reproduzca la cinta grabada en la videocámara hasta localizar el punto en el que desee comenzar la edición, y después ponga la videocámara en el modo de reproducción en pausa. **(3)** Ponga la videograbadora en el modo de grabación en pausa. **(4)** Presione simultáneamente ❚❚ de la videocámara y la videograbadora para comenzar la edición.

Para más información, consulte la página siguiente.

Editing onto Another Tape

To Edit More Scenes

Repeat steps 2 to 4.

To Stop Editing

Press ☐ STOP on the camcorder and VCR. When you finish editing, reset EDIT mode to OFF (p.36).

Use of the EDITSEARCH button

To play back a tape in the forward or reverse direction keep pressing EDITSEARCH during playback pause. You can play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

Note on DISPLAY function

If you have displayed the viewfinder screen indicators on the TV (DISPLAY function), erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

Edición en otra cinta

Para editar más escenas

Repita los pasos 2 a 4.

Para cesar la edición

Presione ☐ STOP de la videocámara y la videograbadora. Cuando finalice la edición, reajuste el modo de EDIT a OFF (pág.36).

Empleo de la tecla EDITSEARCH

Usted podrá reproducir una cinta en sentido progresivo o regresivo, manteniendo presionada EDITSEARCH durante la reproducción en pausa. Si la presiona en forma intermitente, podrá reproducir sucesivamente las imágenes fijas a ciertos intervalos.

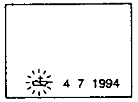
Nota sobre la función DISPLAY

Si ha visualizado los indicadores de la pantalla del visor en el televisor (función DISPLAY), borre los indicadores presionando DISPLAY del telemando para que no se superpongan sobre la cinta editada.

Additional Information

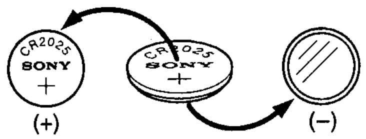
Changing the Lithium Battery in the Camcorder

Your camcorder is supplied with the lithium battery installed. The lithium battery lasts for about 1 year under normal operation. When the battery becomes weak or dead, 🔋 indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with the Sony CR2025 lithium battery. Use of another battery may present a risk of fire or explosion.**



Note on Lithium Battery

Note that the lithium battery has a positive (+) and a negative (–) terminals as illustrated. **Be sure to install the lithium battery so that terminals on the battery match the terminals on the camcorder.**



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution

Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

Información adicional

Reemplazo de la pila de litio de la videocámara

En la videocámara se ha insertado en fábrica una pila de litio. La pila de litio durará aproximadamente 1 año si se utiliza en condiciones normales de funcionamiento. Cuando la pila de litio se debilite o agote, el indicador 🔋 parpadeará en el visor durante unos 5 segundos cuando ponga el selector POWER en CAMERA. En esete caso, **reemplace la pila por otra de litio CR2025 Sony. El empleo de otra pila puede suponer un riesgo de incendio o explosión.**

Nota sobre la pila de litio

Tenga en cuenta que la pila de litio posee un terminal positivo (+) y otro negativo (–) como se ilustra. **Cerciórese de colocar la pila de litio de forma que los terminales de la pila coincidan con los de la videocámara.**

ADVERTENCIA

Si trata mal la pila, puede explotar. No recargue, desarme, ni tire la pila al fuego.

Precaución

Mantenga la pila de litio fuera de alcance de los niños. Si alguien traga la pila, consulte inmediatamente a un médico.

Changing the Lithium Battery in the Camcorder

Reemplazo de la pila de litio de la videocámara

Changing the Lithium Battery

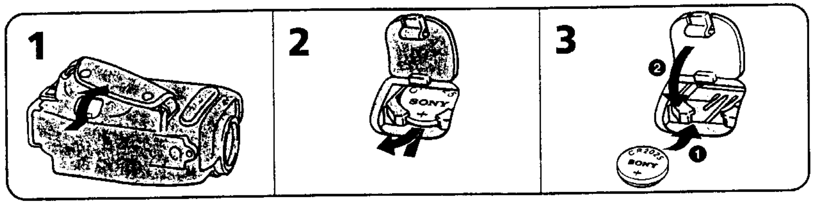
When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and the other items with BACK UP indicator in the menu system.

(1) Open the lid of the lithium battery compartment. **(2)** Push the battery down once and pull it out from the holder. **(3)** Install the lithium battery with the positive (+) side facing out. Close the lid of the battery compartment.

Reemplazo de la pila de litio

Durante el reemplazo la pila de litio, mantenga la batería u otra fuente de alimentación conectada. De lo contrario, deberá reajustar la fecha, la hora y los otros ítems con el indicador BACK UP en el sistema del menú.

(1) Abra la tapa del compartimiento de la pila de litio. **(2)** Empuje la pila una vez hacia abajo y extráigala de su compartimiento. **(3)** Coloque una pila de litio nueva con la cara positiva (+) hacia afuera. Cierre la tapa del compartimiento.



Resetting the Date and Time

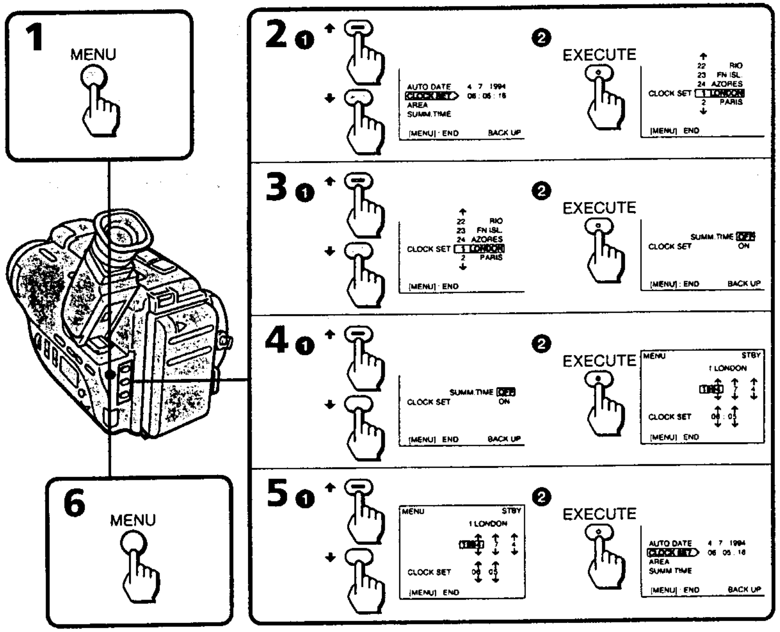
Reset the date and time in the menu system.

(1) Press MENU to display the menu. **(2)** Press ↑ or ↓ to select CLOCK SET item (p.37). Press EXECUTE. **(3)** Press ↑ or ↓ to select the area number where you will use the camcorder. Press EXECUTE. **(4)** Select SUMM.TIME ON for Summer Time or OFF for standard time. Press EXECUTE. **(5)** Set year, month, day, time, minute by pressing ↑, ↓ and EXECUTE. Note that when you keep ↑ and ↓ pressed, the digits advance faster. **(6)** Press MENU to erase the menu display.

Reajuste de la fecha y la hora

Reajuste la fecha y la hora en el sistema del menú.

(1) Presione MENU para visualizar el menú.
(2) Presione ↑ o ↓ para seleccionar el ítem CLOCK SET (pág. 37). Presione EXECUTE.
(3) Presione ↑ o ↓ para seleccionar el número de área donde vaya a utilizar la videocámara. Presione EXECUTE. **(4)** Seleccione ON de SUMM. TIME para la hora de verano, u OFF para la hora estándar. Presione EXECUTE. **(5)** Ajuste el año, mes, día, hora y minutos presionando ↑, ↓ y EXECUTE. Tenga en cuenta que si mantiene presionada ↑ o ↓, los dígitos avanzarán con mayor rapidez. **(6)** Presione MENU para borrar la visualización del menú.



See the next page for further information.

Para más información, consulte la página siguiente.

Resetting the Date and Time

Countries, Area Names and Numbers

Countries	Area name	Area number
The United Kingdom and Portugal (GMT)	LONDON	1
Other European countries (CET)	PARIS	2
Finland, Greece, etc.	CAIRO	3

To Correct the Date and Time Setting

Repeat steps 2 to 5.

To Check the Date and Time

Press DATE to display the date indicator in the viewfinder. Press TIME to display the time indicator. When you press the same button again, the indicator goes out.

To Reset to Standard Time

Change SUMM.TIME mode setting in the menu system (p.36).

The year indicator changes as follows:

1994 ↔ 1995 ←----→ 2024

Reajuste de la fecha y la hora

Países y nombre y número de área

Países	Nombre de área	Número de área
El Reino Unido y Portugal (GMT)	LONDON	1
Otros países europeos (CET)	PARIS	2
Finlandia, Grecia, etc.	CAIRO	3

Para corregir los ajustes de la fecha y la hora

Repita los pasos 2 a 5.

Para comprobar la fecha y la hora

Presione DATE de forma que el indicador de la fecha aparezca en el visor. Presione TIME para visualizar el indicador de la hora. Cuando vuelva a presioner la misma tecla, el indicador se apagará.

Para volver a ajustar a la hora estándar

Cambie el ajuste del modo de SUMM. TIME en el sistema del menú (pág. 36)

El indicador del año cambiará como sigue:

1994 ↔ 1995 ←----→ 2024

Playback Modes

Selecting Cassette Types

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures.
You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on standard 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using a standard 8 mm video recorder/player, you should record the tape in the standard 8 mm system.
If you want to use a Hi8 cassette with the standard 8 mm video recorder system, set the Hi8 mode to OFF in the menu system before recording. (p.36)

To play back in	Record using cassette type	Set Hi8 setting to
Hi8	Hi8	AUTO
Standard 8	Hi8	OFF
	8	AUTO (or OFF)

When You Play Back

The playback mode is selected automatically according to the recording system (SP/LP mode) in which the tape was recorded.

Notes on AFM Hi-Fi stereo

When you play back the tape, the sound is in monaural if:

- You record the tape using this camcorder, then play it back on an AFM Hi-Fi monaural video recorder/player.
- You record the tape on an AFM Hi-Fi monaural video recorder, then play it back on this camcorder.

LP (long play) mode

When you play back a tape recorded in LP mode, the LP indicator lights up in the viewfinder. This camcorder cannot record tape in LP mode.

Modos de reproducción

Selección del tipo de videocassete

El sistema Hi8 (8 mm de alta fiedelidad) se desarrolló a partir del sistema de 8 mm estándar ofreciendo mayor calidad en la imagen.
Con esta videocámara podrán utilizarse los videocassettes Hi8 y los de 8 mm estándar.
Cuando desee grabar en el sistema Hi8, deberá utilizar solamente videocassettes Hi8. Un videocassette de 8 mm estándar no podrá grabarse en el sistema Hi8.
Cuando vaya a reproducir la cinta en una videograbadora de 8 mm estándar, grábela en el sistema de 8 mm estándar.
Si desea utilizar un videocassette Hi8 con el sistema de grabación de 8 mm estándar, ajuste el modo de Hi8 a OFF en el sistema del menú antes de la grabación (pág. 36).

Para reproducir en el sistema	Grabación empleando un videocassette de tipo	Ajuste Hi8 a
Hi8	Hi8	AUTO
8 mm estándar	Hi8	OFF
	8	AUTO (u OFF)

Cuando reproduzca

El modo de reproducción se seleccionará automáticamente de acuerdo con el sistema de grabación (modo SP/LP) en el que se haya grabado la cinta.

Notas sobre el modo estéreo de alta fidelidad de AFM

Cuando reproduzca una cinta, el sonido será monoaural si:

- Reproduce una cinta grabada en esta videocámara en una videograbadora monoaural de alta fidelidad de AFM.
- Reproduce en esta videocámara una cinta grabada en una videograbadora monoaural de alta fidelidad de AFM.

Modo LP (duración larga)

Cuando reproduzca una cinta grabada en el modo LP, el indicador LP se encenderá en el vidor. Con esta videocámara no podrá grabar las cintas en el modo LP.

Playback Modes

Foreign 8 mm video
You cannot play software recorded on a different TV colour system. Because the TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded software. Refer to page 59 to check the TV colour system of foreign countries.

Modos de reproducción

Videocassette de 8 mm de otro sistema
Con esta videocámara no podrá reproducir un software grabado en un sistema de televisión en color diferente. Como el sistema de televisión en color difiere en cada país, es posible que no pueda reproducir un software previamente grabado. Con respecto al sistema de televisión en color de otros países, consulte la página 59.

Tips for Using the Battery Pack

This section shows you how you can get the most out of your battery pack.

Preparing the Battery Pack

Always Carry Additional Batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery Life is Shorter in Cold Environment

Battery efficiency is decreased and the battery will be used up more quickly if you are recording in cold environment.

To Save Battery Power

Turn the STANDBY switch on the camcorder down when not recording to save battery power. **[a]** on page 51.
A smooth transition between scenes can be made even if recording is stopped and started again. While positioning the subject, selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a cassette is inserted or removed.

Consejos para utilizar la batería

En esta sección se explica la forma de obtener el máximo rendimiento de la batería.

Preparación de la batería

Lleve siempre baterías adicionales

Prepare suficientes baterías como para poder alimentar la videocámara el doble o el triple del tiempo de filmación planeada.

La duración de la batería se acortará en climas fríos.

La eficacia de la batería disminuirá y se gastará con mayor rapidez si graba en climas fríos.

Para ahorrar batería

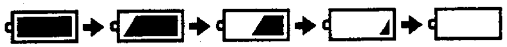
Gire el interruptor STANDBY de la videocámara hacia abajo cuando no vaya a videofilmar a fin de ahorrar batería. **[a]** de la página 51
Aunque detenga y reinicie la filmación, obtendrá una grabación sin transiciones bruscas entre las escenas. Mientras encuadre el motivo o seleccione un ángulo, u observe a través del visor, el objetivo se moverá automáticamente y se utilizará la batería. La batería también se utilizará al insertar o extraer un videocassette.

When to Replace the Battery Pack

While you are using your camcorder, the remaining battery indicator decreases gradually as battery power is used up.

Cuándo reemplazar la batería

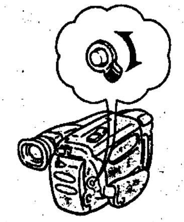
Mientras esté utilizando la videocámara, el indicador de carga restante de la batería disminuirá gradualmente a medida que se reduzca la carga de la batería.



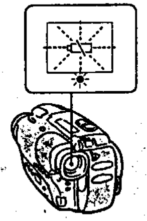
When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder. **[b]**
When the ▭ indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, slide the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain smooth transition between scenes after the battery pack is replaced.

Cuando el indicador de carga restante de la batería llegue al punto mínimo, en el visor aparecerá el indicador ▭ y comenzará a parpadear. **[b]**
Cuando el indicador ▭ en el visor cambie de parpadeo lento a rápido mientras grabe, ponga el selector POWER de la videocámara en OFF y reemplace la batería. Deje el videocassette en la videocámara para obtener una grabación sin transiciones bruscas entre las escenas despúes de haber reemplazado la batería.

[a]



[b]



Note on the remaining battery indicator
The remaining battery indicator of the camcorder may indicate a different remaining capacity from that of the battery pack with the remaining battery indicator (not supplied). The indicator of the battery pack is more accurate.

Nota sobre el indicador de carga restante de la batería
Es posible que este indicador de la videocámara señale una capacidad restante diferente a la indicada por el indicador de la batería (no suministrada). El indicador de la batería es más preciso.

Notes on the Rechargeable Battery Pack

The Battery Heats Up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern.

Notas sobre la batería

La batería se calentará

Durante la carga o la grabación, la batería se calentará.
Esto se debe a la energía generada y al cambio químico que se producen en el interior de la batería, y no significa problema alguno.

Tips for Using the Battery Pack

Battery Care

- Remove the battery pack from the camcorder after using the battery pack, and keep it in a cool place.
  When the battery pack is attached to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF, which shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery right before using the camcorder.

How to Use the Switch on the Battery Pack

This switch is provided so that you can mark the charged battery. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up (or in whichever direction you want to remind yourself). **[c]**

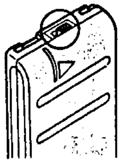
The Life of the Battery Pack

The battery pack can be fully charged and discharged about 500 times under normal temperatures. If the 🔋 indicator flashes rapidly just after turning on the camcordrer with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging Temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

[c]



Consejos para utilizar la batería

Cuidado de la batería

- Después de haber empleado la batería quítela de la videocámara y guárdela en un lugar fresco. Mientras la batería esté fijada a la videocámara, circulará una pequeña cantidad de corriente incluso aunque el selector POWER esté en OFF. Esto acortará la duración útil de la batería.
- La batería estará siempre descargándose, incluso aunque no se utilice. Por lo tanto, se recomienda cargarla antes de emplear la videocámara.

Utilización del señalador de la batería

Este señalador servirá para saber si la batería está cargada o no. Póngalo en la posición "sin marca" cuando finalice la carga.
Póngalo en la posición de la "marca roja" cuando la batería esté descargada completamente (o en el sentido que desee y pueda recordar usted mismo). **[c]**

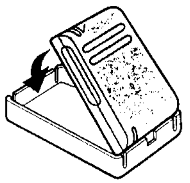
Vida útil de la batería

La batería puede cargar y descargarse una 500 veces a temperaturas normales. Si el indicador 🔋 parpadea rápidamente después de haber conectado la alimentación de la videocámara con una batería completamente cargada, habrá que reemplazarla por otra nueva completamente cargada.

Temperatura durante la carga

Cargue la batería a una temperatura comprendida entre 10 y 30°C. A bajas temperaturas, la carga tardará más en realizarse.

[d]



Notes on Charging

A Brand-new Battery

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Before Recharging a Used Battery Pack

- Make sure to use up the battery before recharging.
- If recording is completed before the 🔋 indicator appears in the viewfinder, you should remove the tape, slide the POWER switch to CAMERA, turn STANDBY up, and leave the camcorder until the 🔋 indicator flashes rapidly.
- When you use the AC-S10 power adaptor, you can use the discharging function.
- **Charging the usable battery causes a lowering of battery capacity. Battery capacity can be recovered if you fully discharge and charge the battery again.**

After Long Storage

Recharge the battery pack after a long period of storage. If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged. Charge it again, but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Notes on the Terminals

If the terminals (metal parts on the back) are not clean, the battery duration will be shortened. When the terminals are not clean or when the battery pack has not been used for a long time, repeat installing and removing the battery pack. This improves the contact condition. Also, wipe the + and – terminals with a soft cloth or paper.

Notas sobre la carga

Baterías nuevas

Una batería nueva no estará cargada. Antes de utilizarla, cárguela completamente.

Antes de recargar baterías usadas

- Asegúrese de utilizar completamente la batería antes de cargarla.
- Si finaliza la filmación antes de que en el visor aparezca el indicador 🔋, extraiga el videocassette, deslice el selector POWER hasta CAMERA, gire STANDBY hacia arriba y deje la videocámara hasta que el indicador 🔋 parpadee rápidamente.
- Cuando utilice el adaptador de alimentación de CA AC-S10, podrá emplear la función de descarga.
- **Si carga una batería sin descargar hará que la capacidad de la misma disminuya. La capacidad de la batería podrá recuperarse si vuelve a descargar y cargarla completamente.**

Después de no haber utilizado una batería durante mucho tiempo

Recargue la batería después de no haberla utilizado durante mucho tiempo. Si una batería cargada completamente no se utiliza durante mucho tiempo (aproximadamente 1 año), ésta se descargará. Vuelva a cargar la batería, pero en este caso su duración será más corta de lo normal. Después de varios ciclos de carga y descarga, la batería recuperará su capacidad original.

Nota sobre los terminales

Si los terminales (partes metálicas de la parte posterior) no están limpios, la duración de la batería se acortará.
Cuando los terminales no estén limpios o no haya utilizado la batería durante mucho tiempo, fije y quite la batería repetidamente. Esto mejorará el contacto. Además, frote los terminales + y – con un paño o un papel suave.

Tips for Using the Battery Pack

Be Sure to Observe the Following

- **To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals. Carry the battery pack attaching to the terminal cover. [d] on page 52.**
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor convert the battery pack.
- Do not expose the battery pack to any mechanical shock.

Consejos para utilizar la batería

Tenga en cuenta lo siguiente

- **Para prevenir accidentes debido a un cortocircuito, no deje que objetos metálicos como un collar entre en contacto con los terminales de la batería. Cuando lleve la batería, fíjele la cubierta de terminales. [d] de la página 52.**
- Mantenga la batería alejada del fuego.
- Mantenga seca la batería.
- No abra ni desarme la batería.
- No la someta a ninguna clase de golpes.

Maintenance Information and Precautions

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. If this happens, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

Inside the Camcorder

When ▣ and ⏏ indicators flash in the viewfinder, moisture has condensed inside the camcorder. If this happens, none of the functions except cassette ejection will work.
Eject the cassette, turn off the camcorder, and leave it with the cassette compartment open for about 1 hour.
If the ▣ indicator does not light up when you turn on the power, you can use the camcorder again.

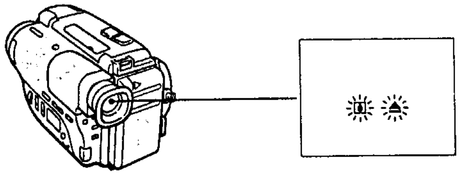
Información sobre el mantenimiento y precauciones

Condensación de humedad

Si traslada directamente la videocámara de un lugar frío a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta, o en el objetivo. En tales condiciones, la cinta puede adherirse al tambor de cabezas y estropearse, o la videocámara puede no funcionar adecuadamente.
Para evitar la posibilidad de daños en estas circunstancias, la videocámara dispone de sensores de humedad. Sin embargo, tenga en cuenta las precauciones siguientes.

En el interior de la videocámara

Cuando los indicadores ▣ y ⏏ parpadeen en el visor, se habrá condensado humedad en el interior de la videocámara. En este caso, no trabajará ninguna función excepto la de expulsión del videocassette.
Extraiga el videocassette, desconecte la alimentación de la videocámara, y déjela con el compartimiento del videocassette abierto durante aproximadamente 1 hora.
La videocámara podrá volver a utilizarse cuando el indicador ▣ no aparezca al volver a conectar la alimentación.



On the Surface of the Tape

If there is moisture on the surface of the tape, when you insert cassette and press a tape transport button (▷ PLAY, etc.), the ⏏ indicator flashes in the viewfinder. If this happens, none of the functions except cassette ejection will work.
Eject the cassette and leave it for about 1 hour.
If the ⏏ indicator does not light up when you insert the cassette and press a tape transport button, you can use the camcorder again.

On the Lens

No indicator will appear, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.
(1) Be sure to tightly seal the plastic bag containing the camcorder. **(2)** Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

En la superficie de la cinta

Si se ha condensado humedad en la superficie de la cinta, cuando inserte un videocassette y presione una tecla de transporte de la cinta (▷ PLAY, etc.), en el visor parpadeará el indicador ⏏. En este caso, no trabajará ninguna función excepto la de expulsión del videocassette.
Extraiga el videocassette, y déjelo durante aproximadamente 1 hora.
La videocámara podrá volver a utilizarse cuando el indcador ⏏ no aparezca al insertar un videocassette y presionar una de las teclas de transporte de la cinta.

En el objetivo

No aparecerá ningún indicador, pero la imagen se volverá borrosa. Desconecte la alimentación y no utilice la videocámara durante aproximadamente 1 hora.

Cómo prevenir la condensación de humedad

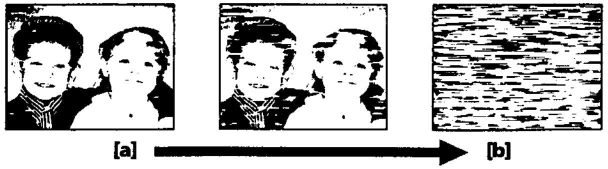
Cuando traslade la videocámara de un lugar frío a otro cálido, coloque la videocámara en una bolsa de plástico y deje que se adapte a las condiciones ambientales de la habitación durante cierto tiempo.
(1) No se olvide de cerrar firmemente la bolsa de plástico que contiene la videocámara. **(2)** Saque la videocámara de la bolsa cuando la temperatura del aire del interior de la bolsa haya alcanzado la ambiental (después de 1 hora aproximadamente).

Video Head Cleaning

To ensure clear pictures, clean the video heads periodically. When playback pictures are "noisy" or hardly visible, the video heads may be contaminated.

Limpieza de las cabezas de vídeo

Para asegurar imágenes claras, limpie periódicamente las cabezas de vídeo. Cuando las imágenes reproducidas sean "ruidosas" o difíciles de ver, es posible que las cabezas de vídeo estén contaminadas.



[a] Slight contamination
[b] Critical contamination

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy", repeat the cleaning. (Do not repeat cleaning more than 5 times.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

[a] Contaminación ligera
[b] Contaminación crítica

Cuando aparezcan estas imágenes, limpie las cabezas de vídeo con un cassette de limpieza V8-25CLH Sony (no suministrado). Después de la limpieza, si las imágenes siguen "ruidosas", repita la limpieza. (No repita la limpieza más de 5 veces.)

Precaución

No utilice cassettes de limpieza de tipo húmedo adquirible en tiendas del ramo, ya que podrían dañar las cabezas de vídeo.

Nota

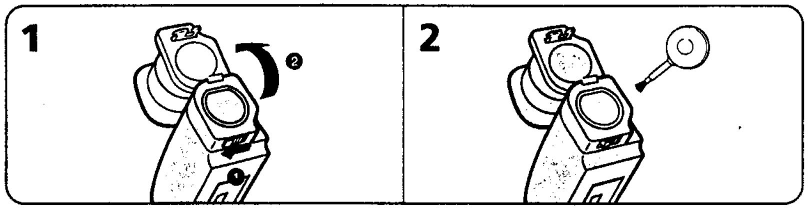
Si el cassette de limpieza V8-25CLH no está disponible en su zona, consulte a un centro de servicios Sony.

Removing Dust from inside the Viewfinder

(1) While sliding the viewfinder release knob to the left, flip open the viewfinder. **(2)** Clean the surface with a commercially available blower.

Para quitar el polvo del interior del visor

(1) Manteniendo deslizado el mando de liberación del visor hacia la izquierda, abra el visor. **(2)** Limpie la superficie con un soplador disponible en tiendas del ramo.



Precautions

Camcorder Operation

- Operate the camcorder using 6.0 V (battery pack), or 7.5 V (AC power adaptor).
- For DC or AC operation, use only the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by your nearest Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On Handling Tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type, thickness of tape, or if the tab is out or in.

Camcorder Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the cassette. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Precauciones

Operación de la videocámara

- Alimente la videocámara con 6,0 V (batería) o 7,5 V (adaptador de alimentación de CA).
- Para alimentarla con CC o CA, utilice sólo los accesorios recomendados en este manual.
- Si dentro de la videocámara cae algún objeto sólido o líquido, desenchufe la videocámara y haga que sea revisada por su proveedor Sony más cercano antes de reutilizarla.
- Evite tratos bruscos o golpes. Tenga especial cuidado con el objetivo.
- Cuando no vaya a utilizar la videocámara, ponga el selector POWER en OFF.
- No utilice la videocámara envuelta, porque se recalentaría.
- Mantenga la videocámara alejada de campos magnéticos intensos y vibraciones mecánicas.

Cuidado del videocassette

No inserte nada en los pequeños orificios de la parte posterior del videocassette. Estos orificios se utilizan para detectar el tipo de cinta, su grosor, o si la lengüeta está o no deslizada.

Cuidados de la videocámara

- Cuando no vaya a utilizar la videocámara durante mucho tiempo, desconecte la fuente de alimentación y extraiga el videocassette. Conecte periódicamente la alimentación; haga funcionar las secciones de la videocámara y el reproductor, y reproduzca una cinta durante unos 3 minutos.
- Limpie el polvo del objetivo con un cepillo suave. Elimine las huellas dactilares con un paño suave.
- Limpie el cuerpo de la videocámara con un paño suave y seco, o ligeramente humedecido en una solución muy diluida de detergente.
  No emplee ningún tipo de disolvente ya que podría dañar la terminación.

Maintenance Information and Precautions

AC Power Adaptor

Charging

- Use only for the specified battery pack. This unit cannot be used to charge an NP-500 series battery pack.
- Attach the battery pack firmly.
- Charge the battery pack on a flat surface without vibration.

Others

- Unplug the unit from the wall (mains) outlet when not in use for a long time. To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC power cord (mains lead) forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or an electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Información sobre el mantenimiento y precauciones

Adaptador de alimentación de CA

Carga

- Empléelo solamente para cargar la batería especificada. Este adaptador no podrá emplearse para cargar una batería de la serie NP-500.
- Fije firmemente la batería.
- Cargue la batería sobre una superficie plana sin vibraciones.

Otros

- Cuando no vaya a utilizar la unidad durante mucho tiempo, desenchúfela de la toma de la red. Para desconectar el cable de alimentación (de la red), tire del enchufe. No tire nunca del propio cable.
- No emplee la unidad con el cable dañado, después de haberla dejado caer, o cuando esté dañada.
- No doble a la fuerza el cable de alimentación de CA (red), ni coloque objetos pesados sobre él, ya que podría dañar el cable y provocar incendios o descargas eléctricas.
- Cerciórese de que ningún objeto metálico entre en contacto con las partes metálicas de la placa conectora, ya que se podría producir un cortocircuito que dañaría la unidad.
- Mantenga siempre limpios los contactos metálicos.
- No desarme la unidad.
- No golpee ni deje caer la unidad.
- Cuando esté empleando la unidad, especialmente durante la carga, manténgala alejada de receptores de AM y equipos de vídeo porque perturbaría la recepción de AM y la operación de vídeo.
- La unidad se calentará durante el empleo. Pero esto es normal.
- No coloque la unidad en lugares:
  - Extremadamente cálidos o fríos
  - Polvorientos o sucios
  - Muy húmedos
  - Sujetos a vibraciones

Si surge alguna dificultad, desenchufe la unidad y póngase en contacto con su proveedor Sony.

Using Your Camcorder Abroad

Each country has its own electricity and TV colour systems. Before using your camcorder abroad, check the following points:

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Difference in Colour Systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV or a SECAM system-based TV with PAL-SECAM transcoder. Check the following alphabetical list.

PAL system countries

Australia, Austria, Belgium, China, Denmark, Finland, former West Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL M system country

Brazil

PAL N system countries

Argentina, Paraguay, Uruguay

NTSC system countries

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries

Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, etc.

Utilización de la videocámara en el extranjero

Cada país posee su propio sistema de suministro eléctrico y sistema de televisión en color. Antes de utilizar su videocámara en el extranjero, verifique los puntos siguientes:

Fuentes de alimentación

Usted podrá utilizar su videocámara con el adaptador de alimentación de CA suministrado en cualquier país donde la tensión de la red sea de 110 a 240 V CA, 50/60 Hz.

Diferencia en los sistemas de color

Esta videocámara está basada en el sistema PAL. Si desea ver la imagen reproducida en un televisor, éste deberá estar basado en el sistema PAL o el sistema SECAM con transcodificador PAL-SECAM. Compruebe la lista siguiente en orden alfabético.

Países con el sistema PAL

Antigua Alemania Occidental, Australia, Austria, Bélgica, China, Dinamarca, España, Finlandia, Gran Bretaña, Holanda, Hong Kong, Italia, Kuwait, Malasia, Noruega, Nueva Zelanda, Portugal, Singapur, Suecia, Suiza, Tailandia, etc.

País con el sistema PAL M

Brasil

Países con el sistema PAL N

Argentina, Paraguay, Uruguay

Países con el sistema NTSC

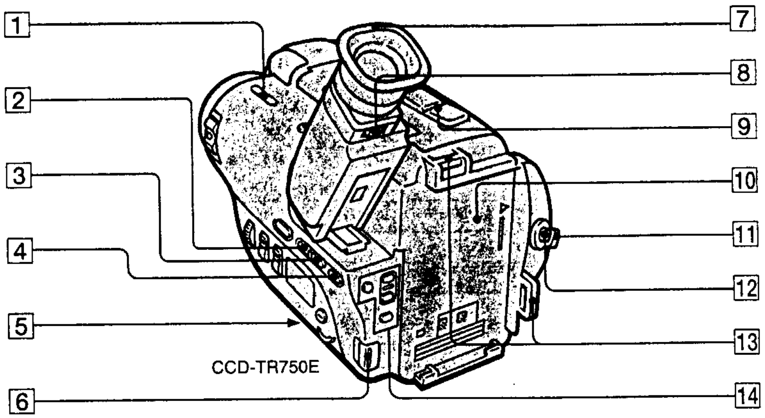
Bolivia, Canadá, Centroamérica, Colombia, Corea, Chile, Ecuador, EE.UU., Filipinas, Islas Bahamas, Jamaica, Japón, México, Perú, Surinam, Taiwan, Venezuela, etc.

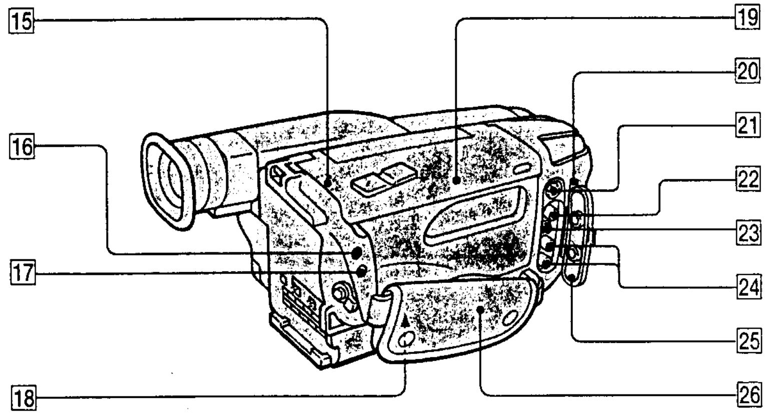
Países con el sistema SECAM

Bulgaria, Francia, Guayana, Hungría, Irán, Iraq, Mónaco, Polonia, antigua Unión Soviética, etc.

Identifying the Parts

Identificación de las partes





[1] **EDITSEARCH button (p.20)**

[2] **DATE button (p.26)**

[3] **TIME button (p.26)**

[4] **COUNTER RESET button (p.14)**

[5] **Tripod receptacle (p.18)**
Attach a tripod (not supplied) here.
When attaching a non-Sony tripod, make sure that the length of the camera mounting screw is shorter than 6.5 mm (9/32 inches). Otherwise, the screw might damage the inner part of the camcorder.

[6] **BATT (battery) release knob (p.10)**

[7] **Eyecup (p.18)**

[8] **Viewfinder release knob (p.19, 56)**

[9] **Power zoom button (p.16)**

[10] **Battery mounting surface (p.10)**

[11] **STANDBY switch (p.12, 13)**

[12] **START/STOP button (p.13)**

[13] **Hooks for shoulder strap (p.73)**

[14] **Menu operation buttons (p.36, 47)**

[1] **Tecla de búsqueda para edición (EDITSEARCH) (pág.20)**

[2] **Tecla de ajuste de la fecha (DATE) (pág.26)**

[3] **Tecla de ajuste de la hora (TIME) (pág.26)**

[4] **Tecla de puesta a cero del contador (COUNTER RESET) (pág.14)**

[5] **Receptáculo para trípode (pág.18)**
Fije un trípode (no suministrado).
Cuando utilice un trípode no fabricado por Sony, asegúrese de que la longitud del tornillo de montaje de la cámara sea inferior a 6,5 mm. De lo contrario, el tornillo puede dañar la parte interna de la videocámara.

[6] **Mando de expulsión de la batería (BATT) (pág.10)**

[7] **Ocular (pág.18)**

[8] **Mando de liberación del visor (pág.19, 56)**

[9] **Tecla del zoom motorizado (pág.16)**

[10] **Superficie de montaje de la batería (pág.10)**

[11] **Interruptor de espera (STANDBY) (pág.12, 13)**

[12] **Tecla de inicio/parada (START/STOP) (pág.13)**

[13] **Ganchos para la bandolera (pág.73)**

[14] **Teclas de operación del menú (pág.36, 47)**

[15] **EJECT button (under the lid) (p.11)**

[16] **LANC Ⓛ control jack**
Connect the LANC Ⓛ connecting cable to a wired remote control unit such as an editing controller. In this case, set the COMMANDER mode to OFF in the menu system (p.36).
Ⓛ stands for Local Application Control Bus sytem. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

[17] **∩ (headphones) jack (p.21)**

[18] **Lithium battery compartment (p.46)**

[19] **Cassette compartment lid (p.11)**

[20] **MIC (microphone) jack**

[21] **S VIDEO jack (p.21)**

[22] **VIDEO jack (p.21)**

[23] **RFU DC OUT (RFU adaptor DC out) jack**

[24] **AUDIO jack (p.21)**

[25] **Jack cover**

[26] **Grip strap (p.18)**

[15] **Tecla de expulsión del videocassette (EJECT) (debajo de la tapa) (pág.11)**

[16] **Toma de control remoto (LANC Ⓛ)**
Conecte un cable conector LANC Ⓛ a una unidad de control remoto alámbrico como un controlador de edición. En este caso, ajuste el modo de COMMANDER a OFF en el sistema del menú (pág.36)
Ⓛ significa sistema de control de bus de aplicación local. La toma Ⓛ se emplea para controlar el movimiento de la cinta de equipos de vídeo y dispositivos periféricos conectados a la misma. Esta toma posee la misma función que los conectores indicados como CONTROL L o REMOTE.

[17] **Toma para auriculares (∩) (pág.21)**

[18] **Compartimiento de la pila de litio (pág.46)**

[19] **Tapa del compartimiento del videocassette (pág.11)**

[20] **Toma para micrófono (MIC)**

[21] **Toma de vídeo S (S VIDEO) (pág.21)**

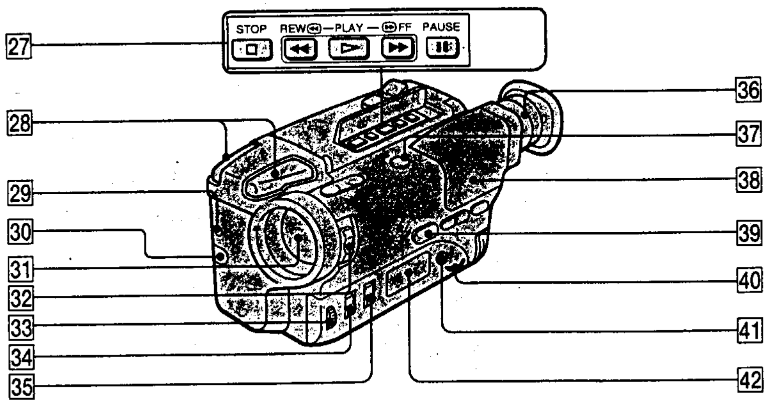
[22] **Toma de vídeo (VIDEO) (pág.21)**

[23] **Toma de salida de CC para el adaptador de RFU (RFU DC OUT)**

[24] **Toma de audio (AUDIO) (pág.21)**

[25] **Cubierta de tomas**

[26] **Correa de la empuñadura (pág.18)**



- [27] **Tape transport buttons (p.22, 23)**
  □ STOP
  ◀◀ REW (rewind)
  ▷ PLAY (playback)
  ▶▶ FF (fast forward)
  ❚❚ PAUSE
  These buttons will function in PLAYER mode.
- [28] **Built-in microphone**
- [29] **Camera recording/battery lamp**
- [30] **Remote sensor (p.75)**
- [31] **Lens cover**
- [32] **POWER switch (p.12, 13)**
- [33] **Focus dial (p.29)**
- [34] **FOCUS switch (p.29)**
- [35] **STEADY SHOT switch (p.35)**
- [36] **Viewfinder adjustment ring (p.12)**
- [37] **FADER button (p.27)**
- [38] **Viewfinder (p.12, 19, 76)**
- [39] **PROGRAM AE button (p.31)**
- [40] **Exposure dial (p.33)** (CCD-TR750E only)
- [41] CCD-TR750E: **EXPOSURE button (p.33)**
  CCD-TR650E: **BACK LIGHT button (p.34)**
- [42] **Display window (p.77)** (CCD-TR750E only)

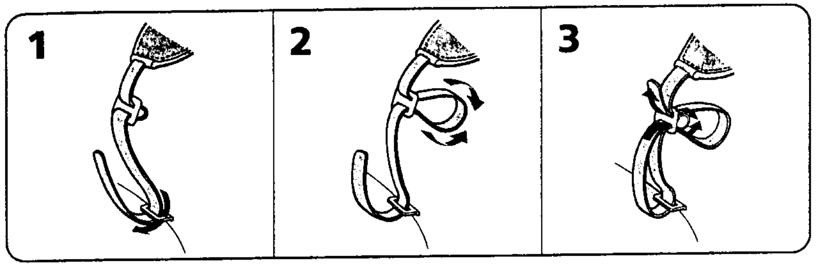
- [27] **Teclas de transporte de la cinta (pág.22, 23)**
  □ STOP(parada)
  ◀◀ REW (rebobinado)
  ▷ PLAY (reproducción)
  ▶▶ FF (avance rápido)
  ❚❚ PAUSE (pausa)
  Estas teclas funcionarán en el modo PLAYER.
- [28] **Micrófono incorporado**
- [29] **Lámpara indicadora de videofilmación/ estado de la batería**
- [30] **Sensor remoto (pág.75)**
- [31] **Cubierta del objetivo**
- [32] **Selector de alimentación (POWER) (pág.12, 13)**
- [33] **Dial de enfoque (pág.29)**
- [34] **Selector de enfoque (FOCUS) (pág.29)**
- [35] **Interruptor de videofilmación estable (STEADY SHOT) (pág.35)**
- [36] **Anillo de ajuste de la lente del visor (pág.12)**
- [37] **Tecla de aumento gradual/desvanecimiento (FADER) (pág.27)**
- [38] **Visor (pág.12, 19, 76)**
- [39] **Tecla de exposición automática programada (PROGRAM AE) (pág.31)**
- [40] **Dial de exposición (pág.33)**
  (CCD-TR750E solamente)
- [41] CCD-TR750E: **Tecla de exposición (EXPOSURE) (pág.33)**
  CCD-TR650E: **Tecla de videofilmación a contraluz (BACK LIGHT) (pág.34)**
- [42] **Ventanilla visualizadora (pág.77)**
  (CCD-TR750E solamente)

Attaching the shoulder strap

Attach the supplied shoulder strap to the hooks for the shoulder strap ([13] on page 70).

Fijación de la bandolera

Fije la bandolera suministrada a los ganchos para la misma ([13] de la página 70).

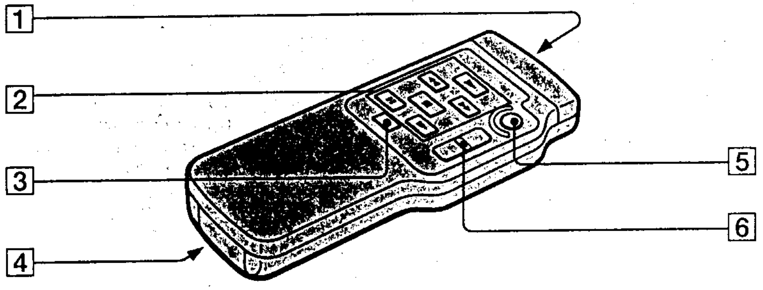


Remote Commander

The buttons that have the same name on the Remote Commander and on the camcorder function identically.

Telemando

Las teclas del telemando con el mismo nombre que las de la videocámara poseen idéntica función.



- [1] **Transmitter**
  Point toward the remote sensor to control the camcorder after turning on the POWER switch on the camcorder.
- [2] **Tape transport buttons (p.22, 23)**
- [3] **DISPLAY button (p.23)**
- [4] **R6 (size AA) battery holder**
- [5] **START/STOP button**
- [6] **Power zoom button**
  The zooming speed is unchangeable on the Remote Commander.

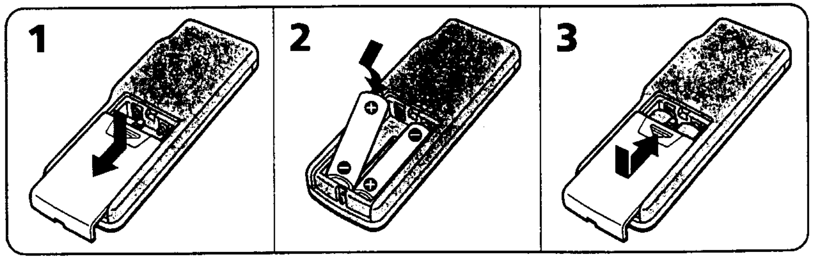
- [1] **Transmisor**
  Para controlar la videocámara con el telemando, active el selector POWER de la videocámara y apunte este transmisor hacia el sensor remoto.
- [2] **Teclas de transporte de la cinta (pág.22, 23)**
- [3] **Tecla de visualización (DISPLAY) (pág.23)**
- [4] **Compartimiento de las pilas R6 (tamaño AA)**
- [5] **Tecla de inicio/parada (START/STOP)**
- [6] **Tecla del zoom motorizado**
  La velocidad del zoom no podrá cambiarse en el telemando.

Preparing the Remote Commander

To use the Remote Commander, you must insert two R6 (size AA) batteries. Use the supplied R6 (size AA) batteries.
(1) Remove the battery cover from the Remote Commander. **(2)** Insert both of the R6 (size AA) batteries with correct polarity. **(3)** Put the battery cover back onto the Remote Commander.

Preparación del telemando

Para utilizar el telemando, deberá colocar dos pilas R6 (tamaño AA). Utilice las pilas R6 (tamaño AA) suministradas.
(1) Quite la tapa del compartimiento de las pilas en el telemando. **(2)** Inserte las dos pilas R6 (tamaño AA) con la polaridad correcta. **(3)** Cierre la tapa.



Note on battery life

The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

Nota sobre la duración de las pilas

Las pilas en el telemando durarán unos 6 meses en condiciones normales de funcionamiento. Cuando las pilas se debiliten o agoten, el telemando no funcionará.

To avoid damage from possible battery leakage

Remove the batteries when you will not use the Remote Commander for a long time.

Para evitar el daño que podría causar el derrame del electrólito de las pilas

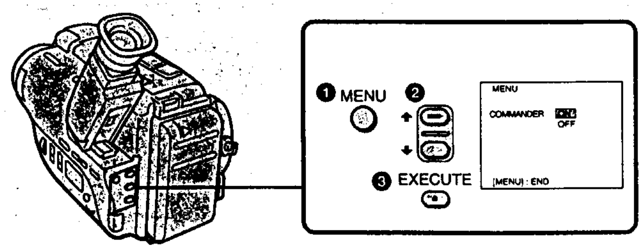
Cuando no vaya a utilizar el telemando durante mucho tiempo, extraiga las pilas.

Using the Remote Commander

Make sure that the COMMANDER mode is set to ON in the menu system (p.36).

Para emplear el telemando

Cerciórese de ajustar el modo de COMMANDER a ON en el sistema del menú (pág.36).

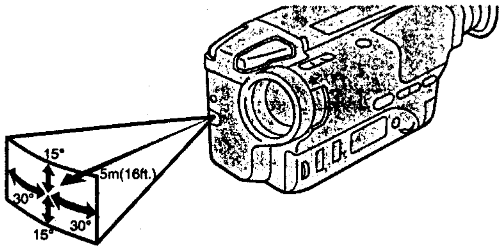


Remote Control Direction

Aim the Remote Commander to the remote sensor within the range as shown below.

Área controlable mediante el telemando

Apunte con el telemando hacia el sensor remoto dentro de la gama que se muestra en la ilustración.



Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2, and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

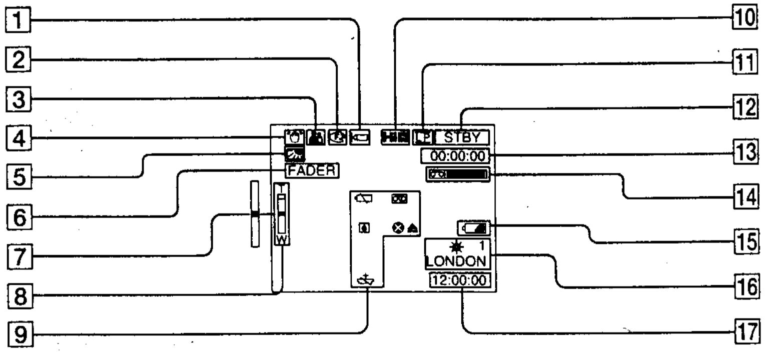
Notas sobre el telemando

- Mantenga el sensor remoto alejado de luces intensas, como la directa del sol u otras de iluminación intensa. De lo contrario, el telemando no funcionará adecuadamente.
- Asegúrese de que no haya ningún obstáculo entre el telemando y el sensor remoto.
- Esta videocámara funciona con señales del modo de mando VTR 2. El modo de mando (1, 2 y 3) se utiliza para distinguir esta videocámara de otras videograbadoras Sony para evitar una operación errónea. Si utiliza otra videograbadora Sony en el modo de mando VTR 2, se recomienda cambiarlo o cubrir el sensor de la videograbadora con un papel negro.

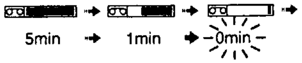
Identirying the Parts

Identificación de las partes

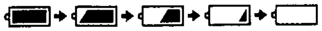
In the Viewfinder



1. Wind indicator (p.37)
2. Manual focusing (p.29)
3. PROGRAM AE mode indicator (p.31)
4. Steady Shot indicator (p.35) (CCD-TR750E only)
5. Back light indicator (p.34) (CCD-TR650E only)
6. Fade indicator (p.27)
7. Exposure indicator (p.33) (CCD-TR750E only)
8. Power zoom indicator (p.16)
9. Warning indicator (p.78)
10. Playing back or recording in Hi8 format
11. Lights up when playing back a tape recorded in LP mode (p.49)
12. Tape transport mode (p.13, 22)
13. Tape counter (p.14)
14. Remaining tape indicator (p.14)



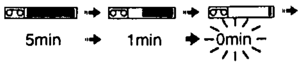
15. Remaining battery indicator (p.51)



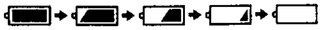
16. World clock indicator (p.40)
17. Date or Time (p.26)

En el visor

1. Indicador de reducción de ruido de viento (pág.37)
2. Indicador de enfoque manual (pág.29)
3. Indicador de modo de PROGRAM AE (pág.31)
4. Indicador de videofilmación estable (pág.35) (CCD-TR750E solamente)
5. Indicador de videofilmación a contraluz (pág.34) (CCD-TR650E solamente)
6. Indicador de aumento gradual/ desvanecimiento (pág.27)
7. Indicador de la exposición (pág.33) (CCD-TR750E solamente)
8. Indicador del zoom motorizado (pág.16)
9. Indicador de advertencia (pág.78)
10. Reproducción o grabación en el formato Hi8
11. Se encenderá cuando reproduzca una cinta grabada en el modo LP (pág.49)
12. Modo de transporte de la cinta (pág.13, 22)
13. Contador de la cinta (pág.14)
14. Indicador de duración restante de la cinta (pág.14)



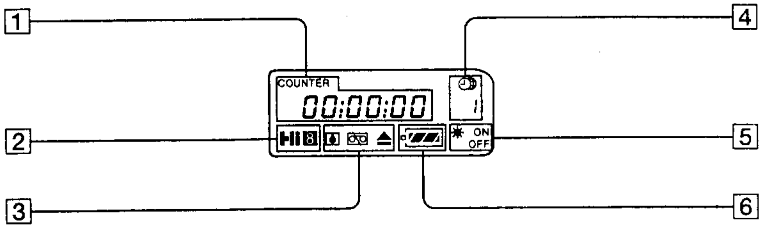
15. Indicador de carga restante de la batería (pág.51)



16. Indicador del reloj mundial (pág.40)
17. Fecha u hora (pág.26)

In the Display Window

— For CCD-TR750E only



1. Tape counter, time or date indicator (p.14, 26)
2. Playing back or recording in Hi8 format
3. Warning indicator (p.78)
4. World clock indicator (p.40)
5. Summer time indicator (p.40)
6. Remaining battery indicator (p.51)

En la ventanilla visualizadora

— Para la CCD-TR750E solamente

1. Indicador del contador de la cinta, la fecha o la hora (pág.14, 26)
2. Reproducción o grabación en el formato Hi8
3. Indicador de advertencia (pág.78)
4. Indicador del reloj mundial (pág.40)
5. Indicador de la hora de verano (pág.40)
6. Indicador de capacidad restante de la batería (pág.51)

Warning Indicators

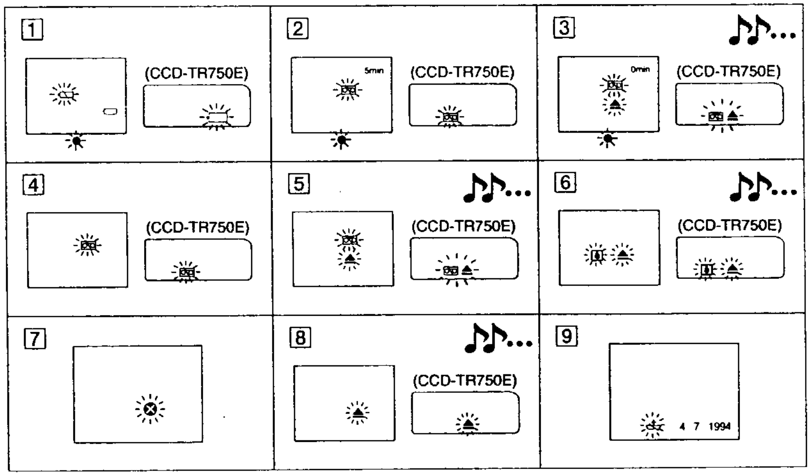
If indicators flash in the viewfinder and the display window (CCD-TR750E only), or a caution lamp on the camcorder flashes, check the following:

♪ : You can hear the beep sound when the BEEP is set to ON.

Indicadores de advertencia

Si parpadean indicadores en el visor y en la ventanilla visualizadora (CCD-TR750E solamente), o una lámpara de precaución en la videocámara, verifique los puntos siguientes.

♪ : Podrá oír pitidos si ajusta BEEP a ON.

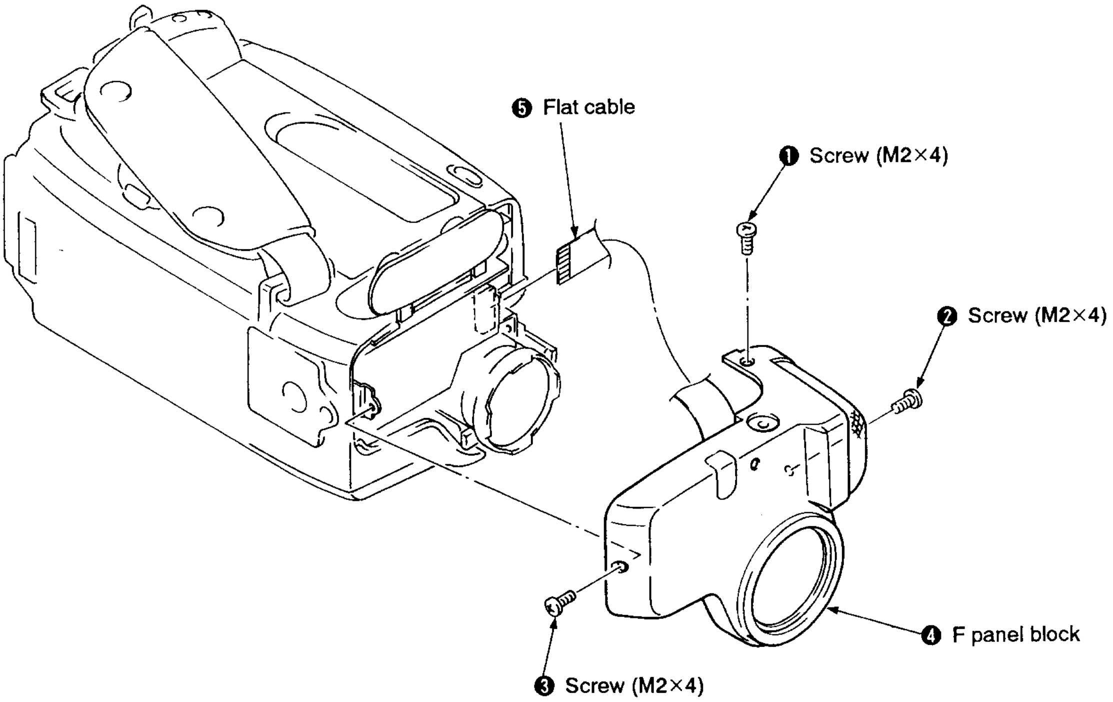


1. Battery Remaining
   Slow flashing: The battery is weak.
   Fast flashing: The battery is dead.
2. The tape is near the end.
3. The tape has run out.
4. No tape has been inserted.
5. The tab on the tape is out (red) (p.11).
6. Moisture condensation has occurred (p.54).
7. The video heads may be contaminated (p.56).
8. Some other trouble has occurred.
   Disconnect the power source and contact your Sony dealer or local authorized facility.
9. The lithium battery is weak or the lithium battery is not installed (p.45).

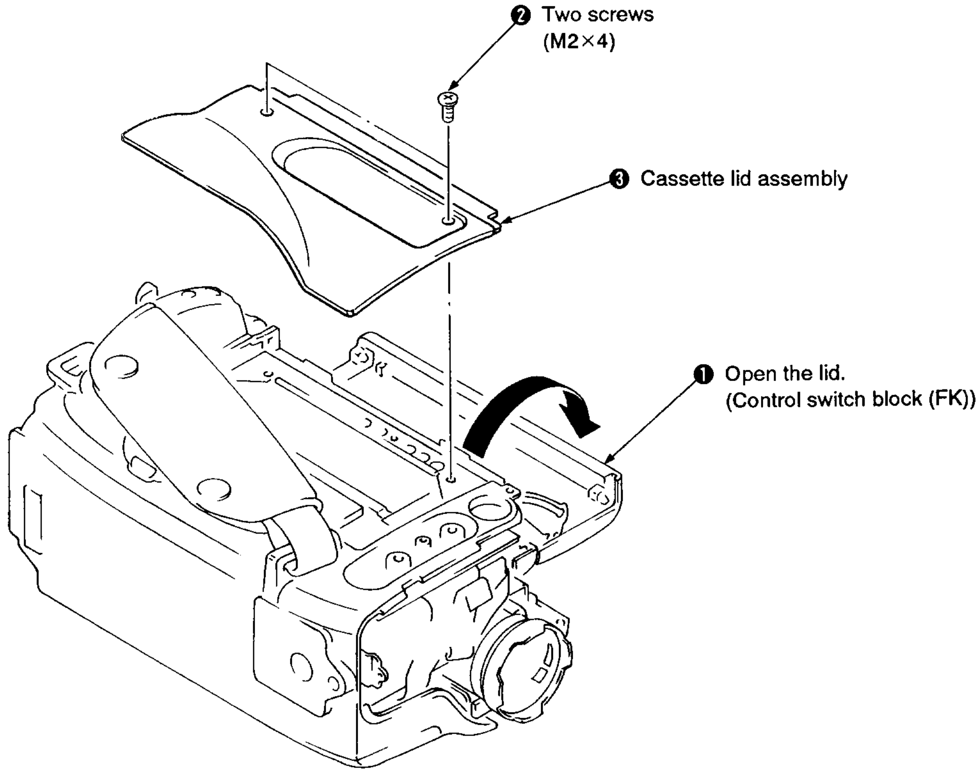
1. Carga restante de la batería
   Parpadeo lento: La batería está débil.
   Parpadeo rápido: La batería está agotada.
2. La cinta está a punto de finalizar.
3. La cinta ha finalizado.
4. No hay videocassette insertado.
5. La lengüeta del videocassette está al descubierto (roja) (pág.11).
6. Se ha producido condensación de humedad (pág.54).
7. Las cabezas de vídeo pueden estar contaminadas (pág.56).
8. Se ha producido algún otro problema.
   Desconecte la fuente de alimentación y póngase en contacto con su proveedor Sony o una estación de servicio autorizado local.
9. La pila de litio está débil, o no está colocada (pág.45).

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF F PANEL BLOCK

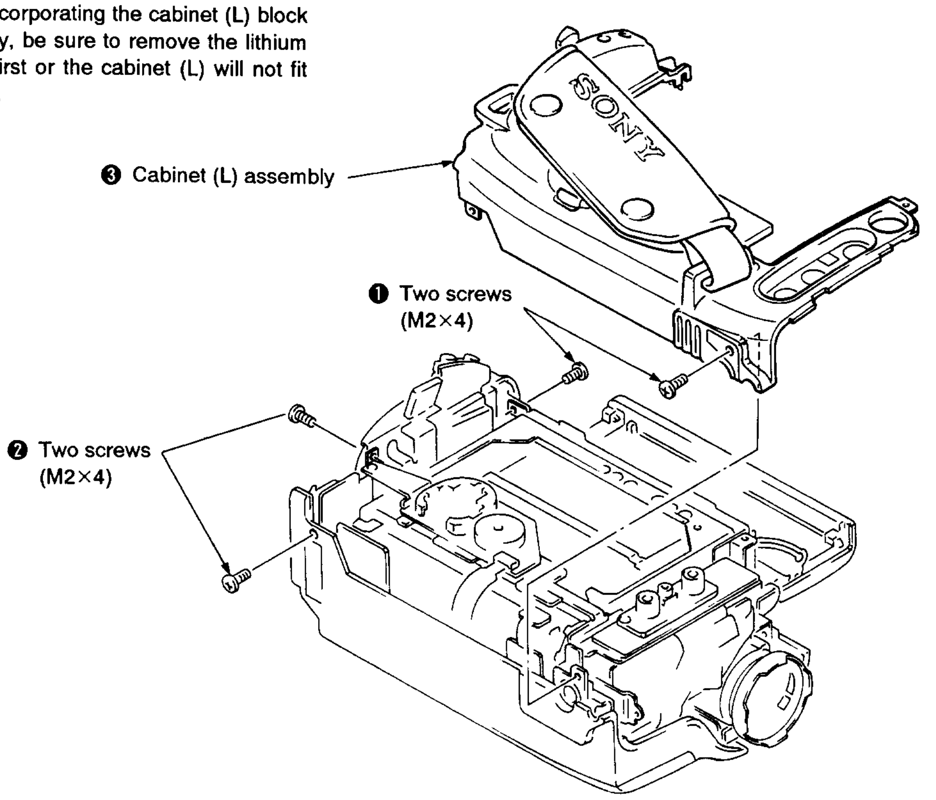

❺ Flat cable
❶ Screw (M2×4)
❷ Screw (M2×4)
❹ F panel block
❸ Screw (M2×4)

2-2. REMOVAL OF CASSETTE LID ASSEMBLY

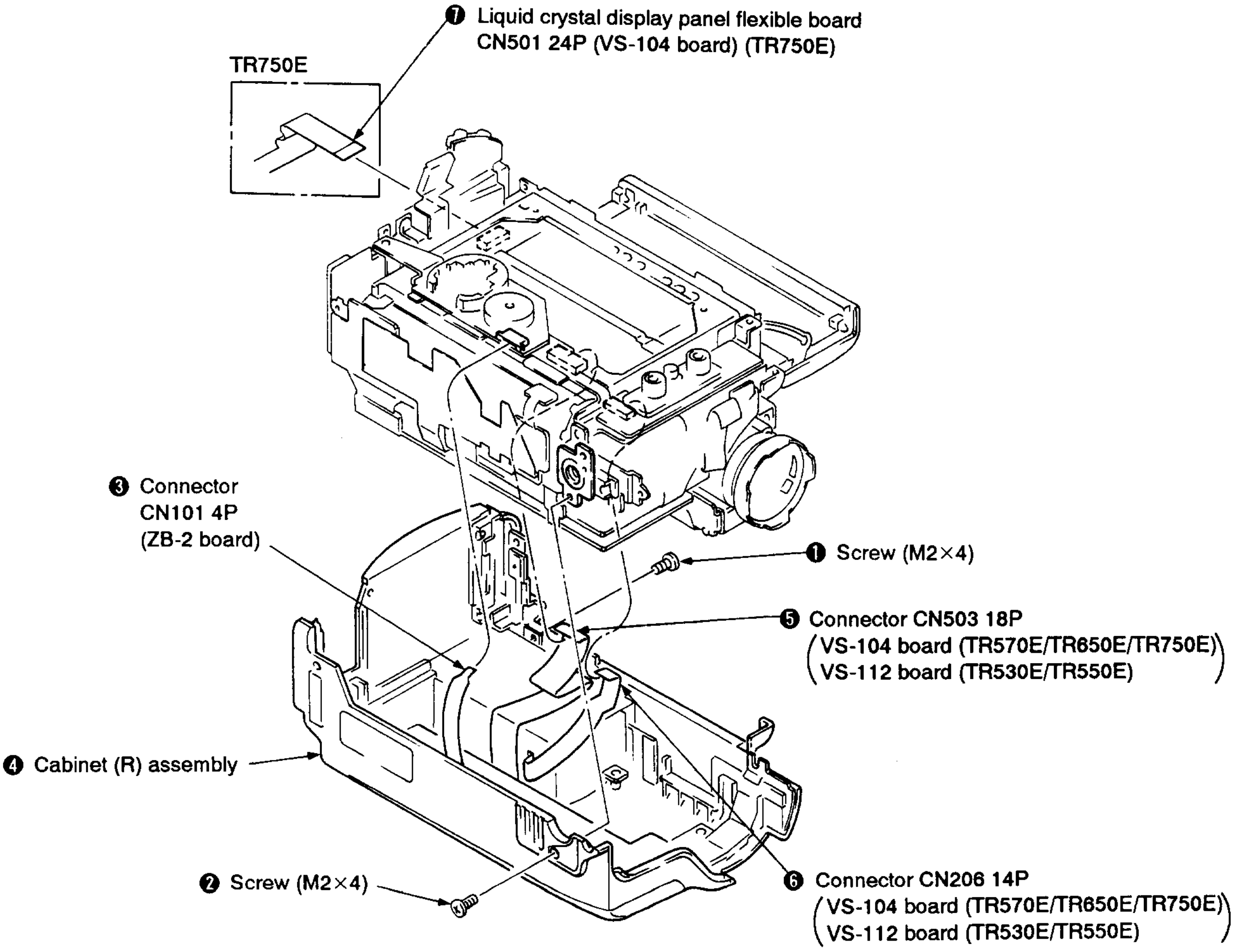

❷ Two screws
(M2×4)
❸ Cassette lid assembly
❶ Open the lid.
(Control switch block (FK))

2-3. REMOVAL OF CABINET (L) ASSEMBLY

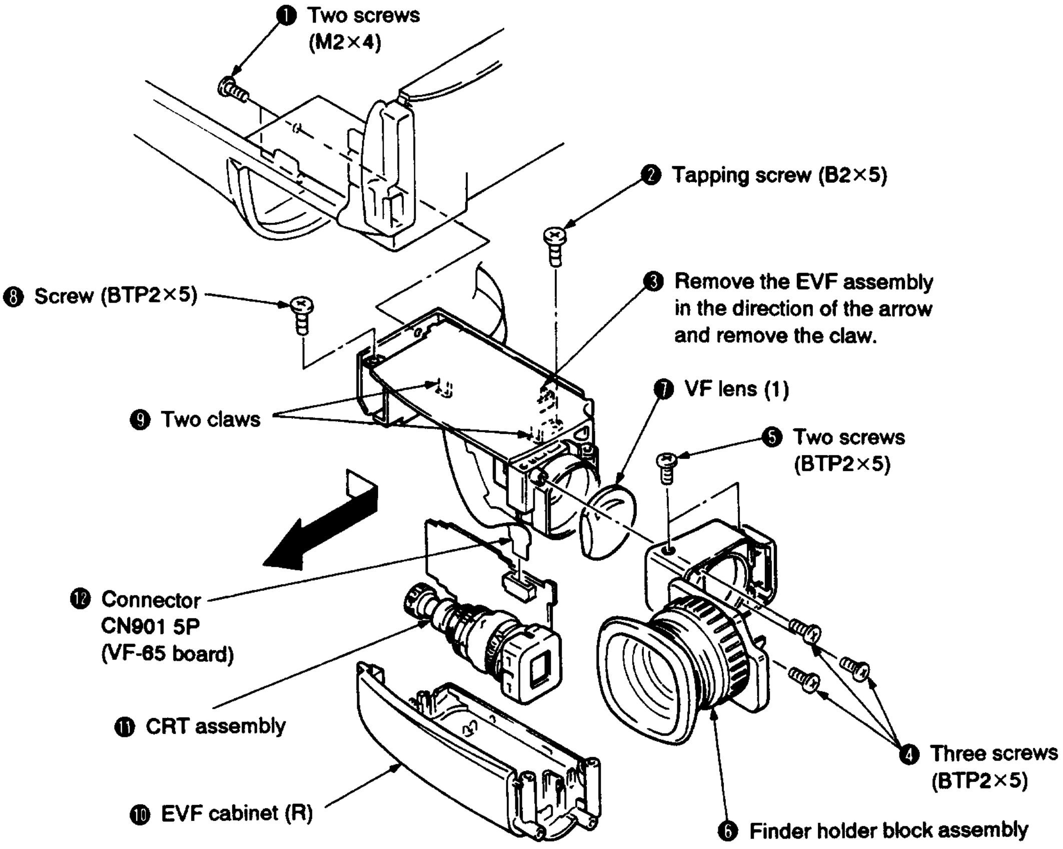
Note: When incorporating the cabinet (L) block assembly, be sure to remove the lithium battery first or the cabinet (L) will not fit properly.


❸ Cabinet (L) assembly
❶ Two screws (M2×4)
❷ Two screws (M2×4)
SONY

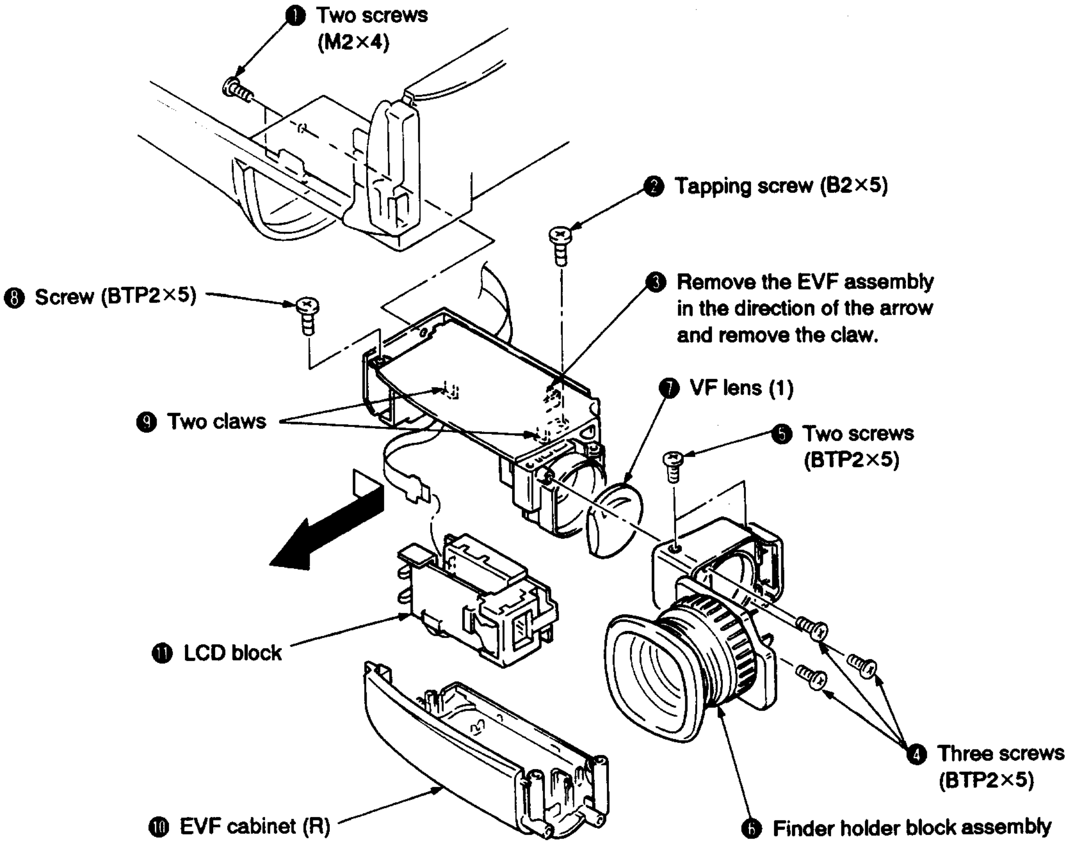
2-4. REMOVAL OF CABINET (R) ASSEMBLY


❼ Liquid crystal display panel flexible board CN501 24P (VS-104 board) (TR750E)
TR750E
❸ Connector CN101 4P (ZB-2 board)
❶ Screw (M2×4)
❺ Connector CN503 18P (VS-104 board (TR570E/TR650E/TR750E) VS-112 board (TR530E/TR550E))
❹ Cabinet (R) assembly
❷ Screw (M2×4)
❻ Connector CN206 14P (VS-104 board (TR570E/TR650E/TR750E) VS-112 board (TR530E/TR550E))

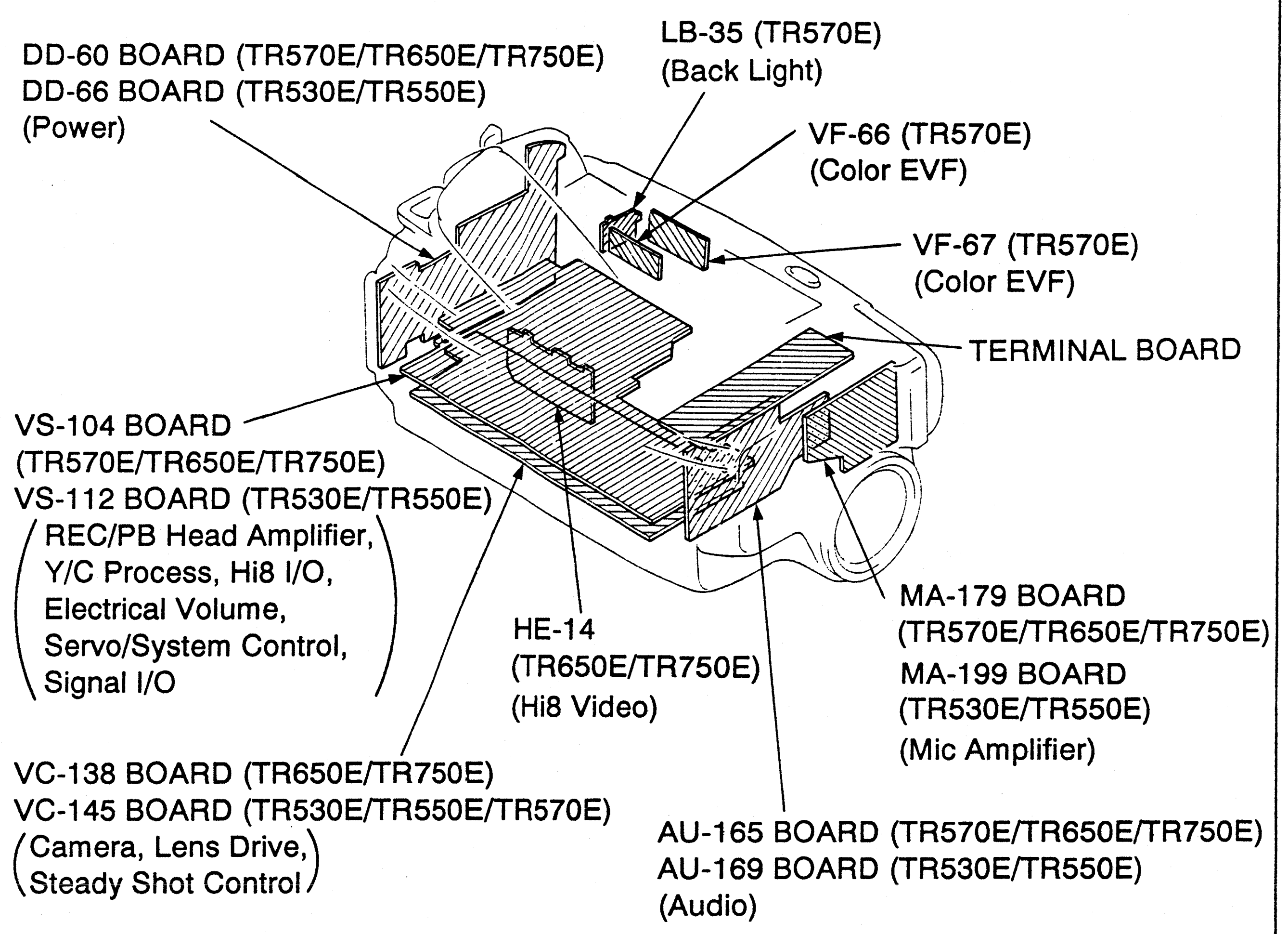
2-5. REMOVAL OF EVF ASSEMBLY (TR530E/TR550E/TR650E/TR750E)

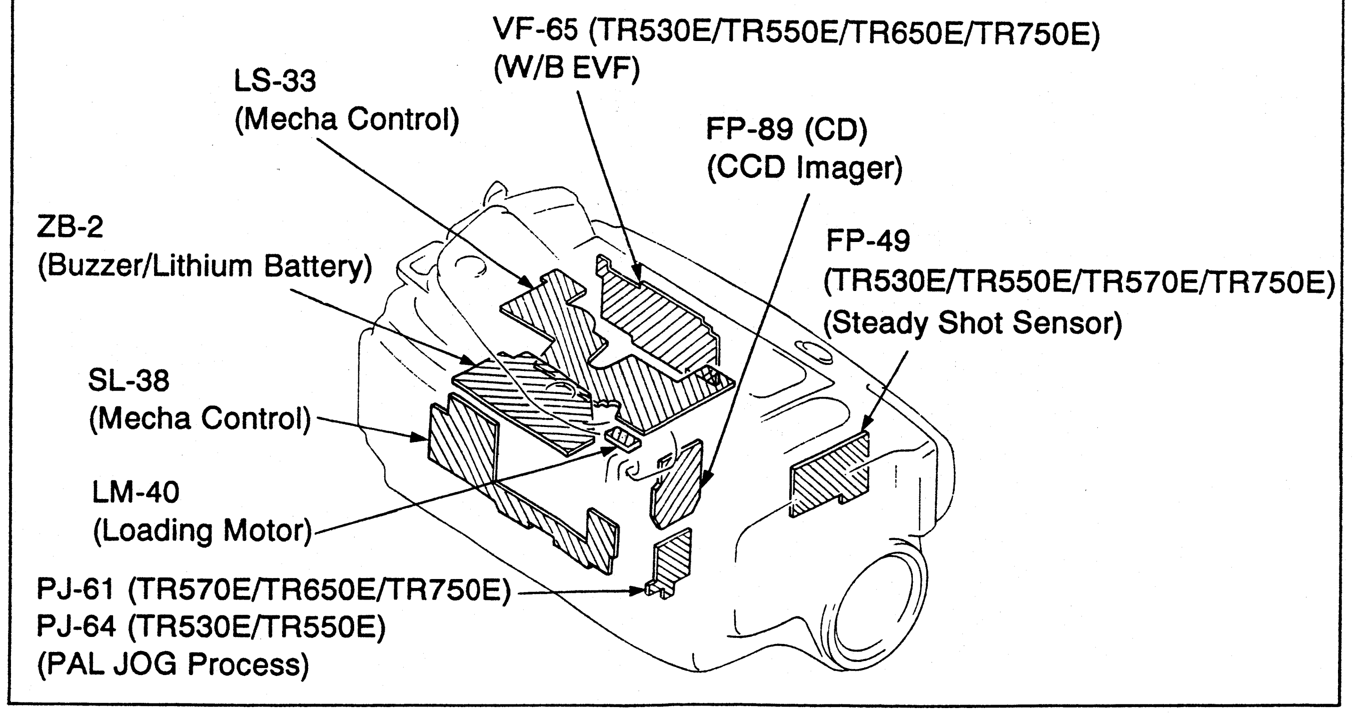

① Two screws (M2×4)
② Tapping screw (B2×5)
⑧ Screw (BTP2×5)
③ Remove the EVF assembly in the direction of the arrow and remove the claw.
⑦ VF lens (1)
⑨ Two claws
⑤ Two screws (BTP2×5)
⑫ Connector CN901 5P (VF-65 board)
⑪ CRT assembly
④ Three screws (BTP2×5)
⑩ EVF cabinet (R)
⑥ Finder holder block assembly

2-5. REMOVAL OF EVF ASSEMBLY (TR570E)


① Two screws (M2×4)
② Tapping screw (B2×5)
⑧ Screw (BTP2×5)
③ Remove the EVF assembly in the direction of the arrow and remove the claw.
⑦ VF lens (1)
⑨ Two claws
⑤ Two screws (BTP2×5)
⑪ LCD block
④ Three screws (BTP2×5)
⑩ EVF cabinet (R)
⑥ Finder holder block assembly

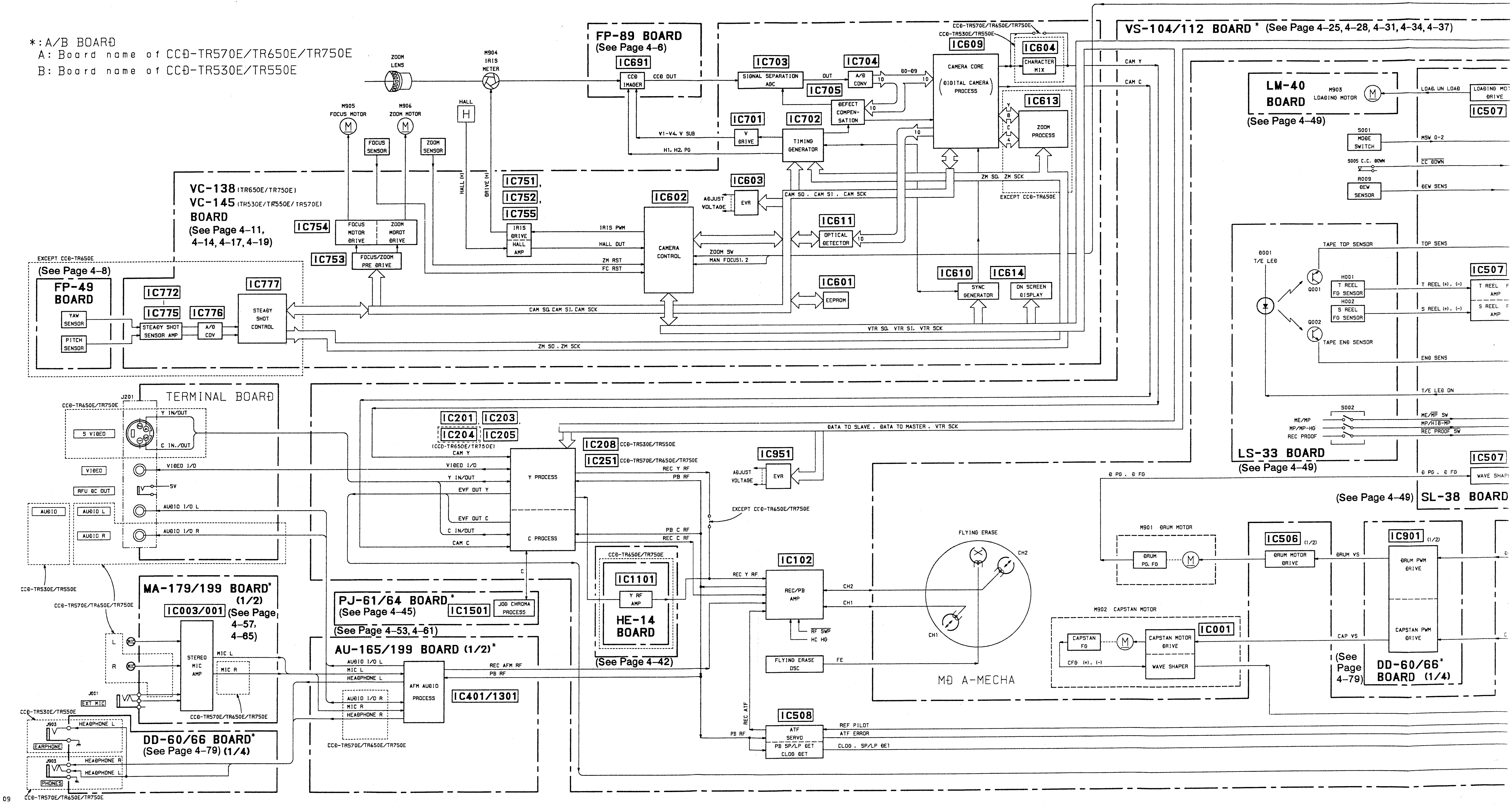
2-14. CIRCUIT BOARDS LOCATION


DD-60 BOARD (TR570E/TR650E/TR750E)
DD-66 BOARD (TR530E/TR550E)
(Power)
LB-35 (TR570E)
(Back Light)
VF-66 (TR570E)
(Color EVF)
VF-67 (TR570E)
(Color EVF)
TERMINAL BOARD
VS-104 BOARD
(TR570E/TR650E/TR750E)
VS-112 BOARD (TR530E/TR550E)
(REC/PB Head Amplifier,
Y/C Process, Hi8 I/O,
Electrical Volume,
Servo/System Control,
Signal I/O)
HE-14
(TR650E/TR750E)
(Hi8 Video)
MA-179 BOARD
(TR570E/TR650E/TR750E)
MA-199 BOARD
(TR530E/TR550E)
(Mic Amplifier)
VC-138 BOARD (TR650E/TR750E)
VC-145 BOARD (TR530E/TR550E/TR570E)
(Camera, Lens Drive,
Steady Shot Control)
AU-165 BOARD (TR570E/TR650E/TR750E)
AU-169 BOARD (TR530E/TR550E)
(Audio)


VF-65 (TR530E/TR550E/TR650E/TR750E)
(W/B EVF)
LS-33
(Mecha Control)
FP-89 (CD)
(CCD Imager)
ZB-2
(Buzzer/Lithium Battery)
FP-49
(TR530E/TR550E/TR570E/TR750E)
(Steady Shot Sensor)
SL-38
(Mecha Control)
LM-40
(Loading Motor)
PJ-61 (TR570E/TR650E/TR750E)
PJ-64 (TR530E/TR550E)
(PAL JOG Process)

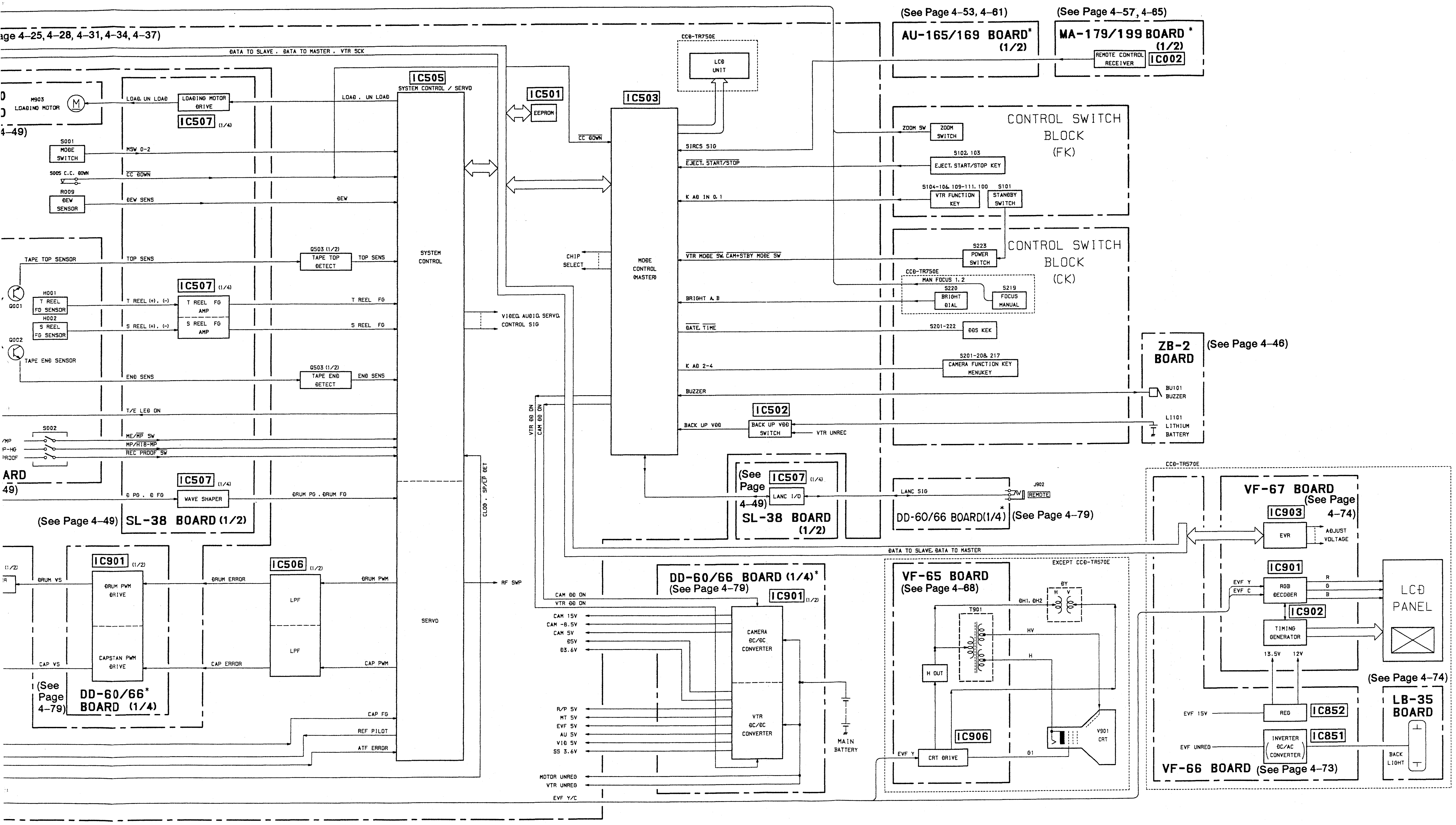
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

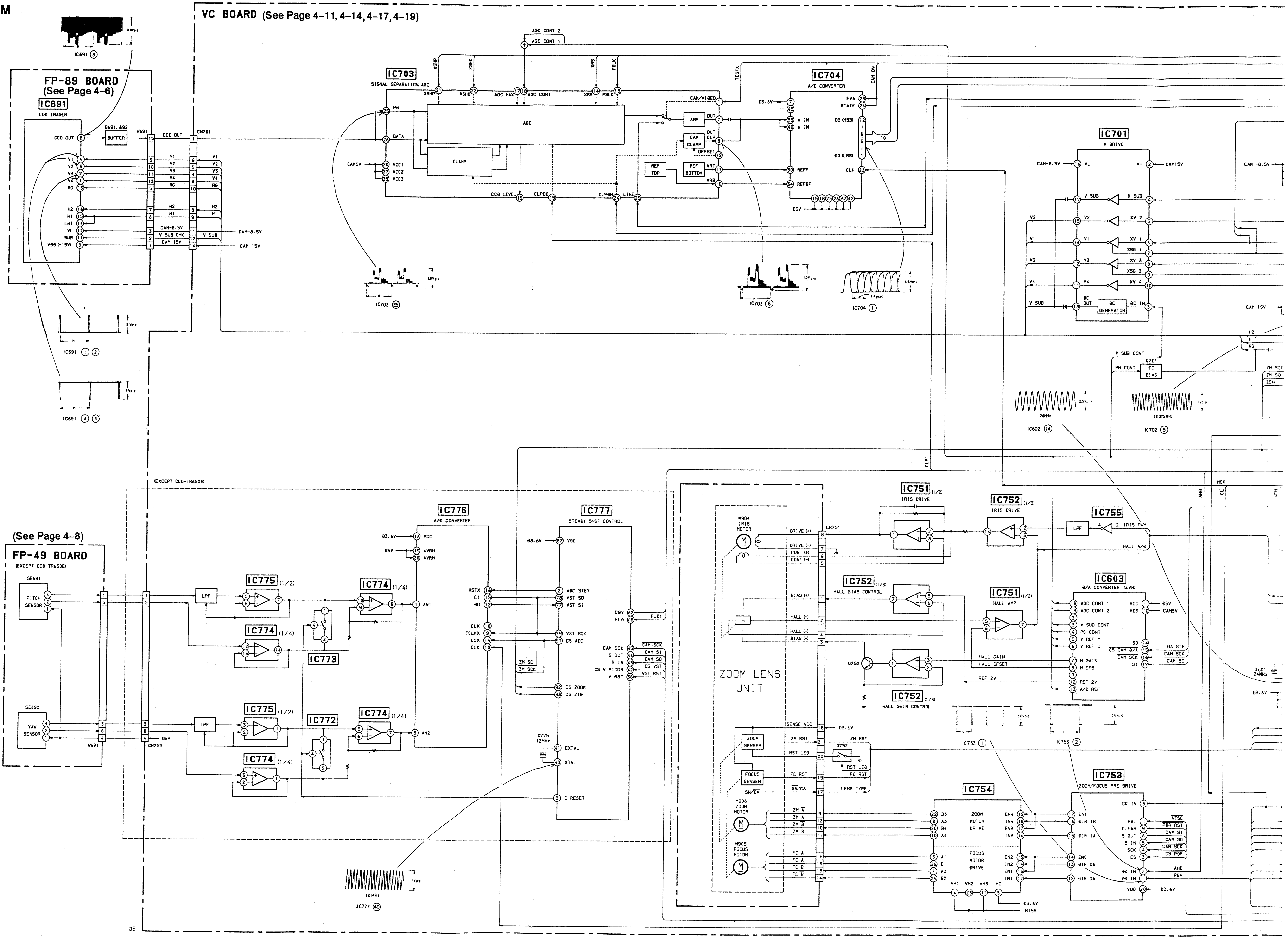


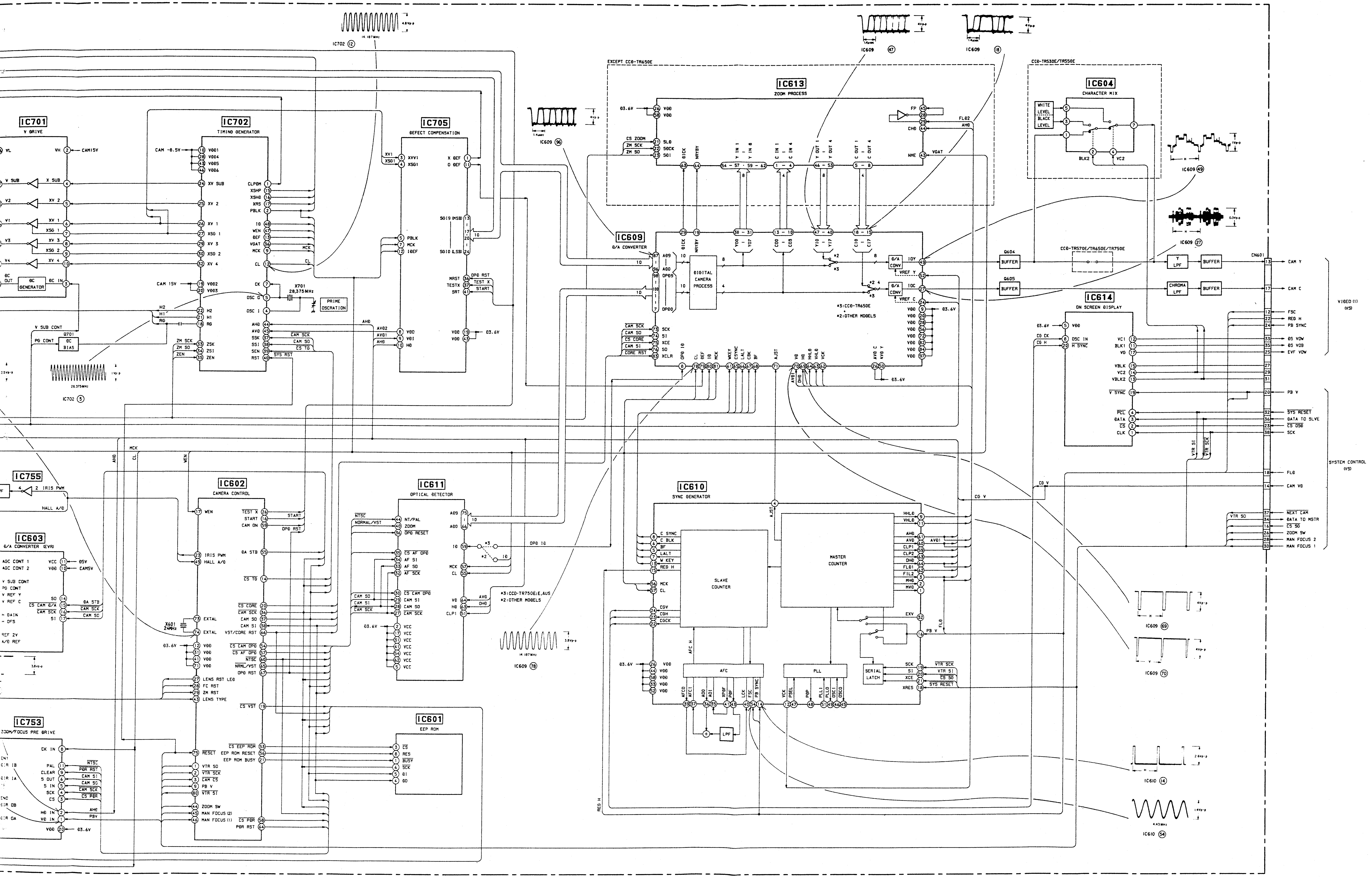
*: A/B BOARD
A: Board name of CCD-TR570E/TR650E/TR750E
B: Board name of CCD-TR530E/TR550E

FP-89 BOARD
(See Page 4-6)
IC691
CCD IMAGER
CCD OUT
ZOOM LENS
M904 IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
HALL
H
FOCUS SENSOR
ZOOM SENSOR
HALL (+)
DRIVE (+)
IC703
SIGNAL SEPARATION AGC
OUT
IC705
IC704
A/D CONV
10
D0-D9
IC609
CAMERA CORE
(DIGITAL CAMERA PROCESS)
CCD-TR570E/TR650E/TR750E
CCD-TR530E/TR550E
IC604
CHARACTER MIX
IC613
ZOOM PROCESS
Y
C
DEFECT COMPEN-SATION
IC701
V DRIVE
IC702
TIMING GENERATOR
V1-V4, V SUB
H1, H2, PG
ZM SO, ZM SCK
EXCEPT CCD-TR650E
VC-138 (TR650E/TR750E)
VC-145 (TR530E/TR550E/TR570E)
BOARD
(See Page 4-11, 4-14, 4-17, 4-19)
IC751, IC752, IC755
IRIS DRIVE
HALL AMP
IC754
FOCUS MOTOR DRIVE
ZOOM MOROT DRIVE
IC753
FOCUS/ZOOM PRE DRIVE
IC602
CAMERA CONTROL
IRIS PWM
HALL OUT
ZM RST
FC RST
IC603
ADJUST VOLTAGE
EVR
CAM SO, CAM SI, CAM SCK
ZOOM SW
MAN FOCUS1, 2
IC611
OPTICAL DETECTOR
IC601
EEPROM
IC610
SYNC GENERATOR
IC614
ON SCREEN DISPLAY
VTR SO, VTR SI, VTR SCK
EXCEPT CCD-TR650E
(See Page 4-8)
FP-49 BOARD
YAW SENSOR
PITCH SENSOR
IC772
IC775
STEADY SHOT SENSOR AMP
IC776
A/D COV
IC777
STEADY SHOT CONTROL
CAM SO, CAM SI, CAM SCK
ZM SO, ZM SCK
VS-104/112 BOARD* (See Page 4-25, 4-28, 4-31, 4-34, 4-37)
CAM Y
CAM C
LM-40 BOARD
(See Page 4-49)
M903 LOADING MOTOR
M
LOAD, UN LOAD
LOADING MOTOR DRIVE
IC507
S001 MODE SWITCH
MSW 0-2
S005 C.C. DOWN
CC DOWN
R009 DEW SENSOR
DEW SENS
D001 T/E LED
TAPE TOP SENSOR
TOP SENS
Q001
H001 T REEL FG SENSOR
T REEL (+), (-)
H002 S REEL FG SENSOR
S REEL (+), (-)
Q002
TAPE END SENSOR
END SENS
T/E LED ON
S002
ME/MP
MP/MP-HG
REC PROOF
ME/MP SW
MP/HIB-MP
REC PROOF SW
LS-33 BOARD
(See Page 4-49)
IC507
T REEL AMP
S REEL AMP
WAVE SHAPER
D PG, D FG
(See Page 4-49) SL-38 BOARD
TERMINAL BOARD
J201
CCD-TR650E/TR750E
S VIDEO
Y IN/OUT
C IN/OUT
VIDEO
VIDEO I/O
RFU DC OUT
5V
AUDIO
AUDIO L
AUDIO R
AUDIO I/O L
AUDIO I/O R
CCD-TR530E/TR550E
CCD-TR570E/TR650E/TR750E
IC201
IC203
IC204
IC205
(CCD-TR650E/TR750E)
CAM Y
VIDEO I/O
Y IN/OUT
EVF OUT Y
EVF OUT C
C IN/OUT
CAM C
Y PROCESS
C PROCESS
DATA TO SLAVE, DATA TO MASTER, VTR SCK
IC208 CCD-TR530E/TR550E
IC251 CCD-TR570E/TR650E/TR750E
REC Y RF
PB RF
PB C RF
REC C RF
IC951
ADJUST VOLTAGE
EVR
EXCEPT CCD-TR650E/TR750E
CCD-TR650E/TR750E
IC1101
Y RF AMP
HE-14 BOARD
(See Page 4-42)
C
PJ-61/64 BOARD*
(See Page 4-45)
IC1501
JOG CHROMA PROCESS
(See Page 4-53, 4-61)
AU-165/199 BOARD (1/2)*
AUDIO I/O L
MIC L
HEADPHONE L
AUDIO I/O R
MIC R
HEADPHONE R
AFM AUDIO PROCESS
REC AFM RF
PB RF
IC401/1301
CCD-TR570E/TR650E/TR750E
MA-179/199 BOARD* (1/2)
IC003/001
(See Page 4-57, 4-65)
L
R
MIC
STEREO MIC AMP
MIC L
MIC R
J001
EXT MIC
CCD-TR570E/TR650E/TR750E
CCD-TR530E/TR550E
J903
HEADPHONE L
EARPHONE
HEADPHONE R
HEADPHONE L
PHONES
DD-60/66 BOARD*
(See Page 4-79) (1/4)
CCD-TR570E/TR650E/TR750E
09
IC102
REC Y RF
REC/PB AMP
CH2
CH1
RF SWP
HC HG
FLYING ERASE OSC
FE
FLYING ERASE
CH2
CH1
MD A-MECHA
REC ATF
PB RF
IC508
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF ERROR
CLOG, SP/LP DET
M901 DRUM MOTOR
DRUM PG, FG
M
IC506 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC901 (1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
M902 CAPSTAN MOTOR
CAPSTAN FG
M
CFG (+), (-)
IC001
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
(See Page 4-79)
DD-60/66* BOARD (1/4)

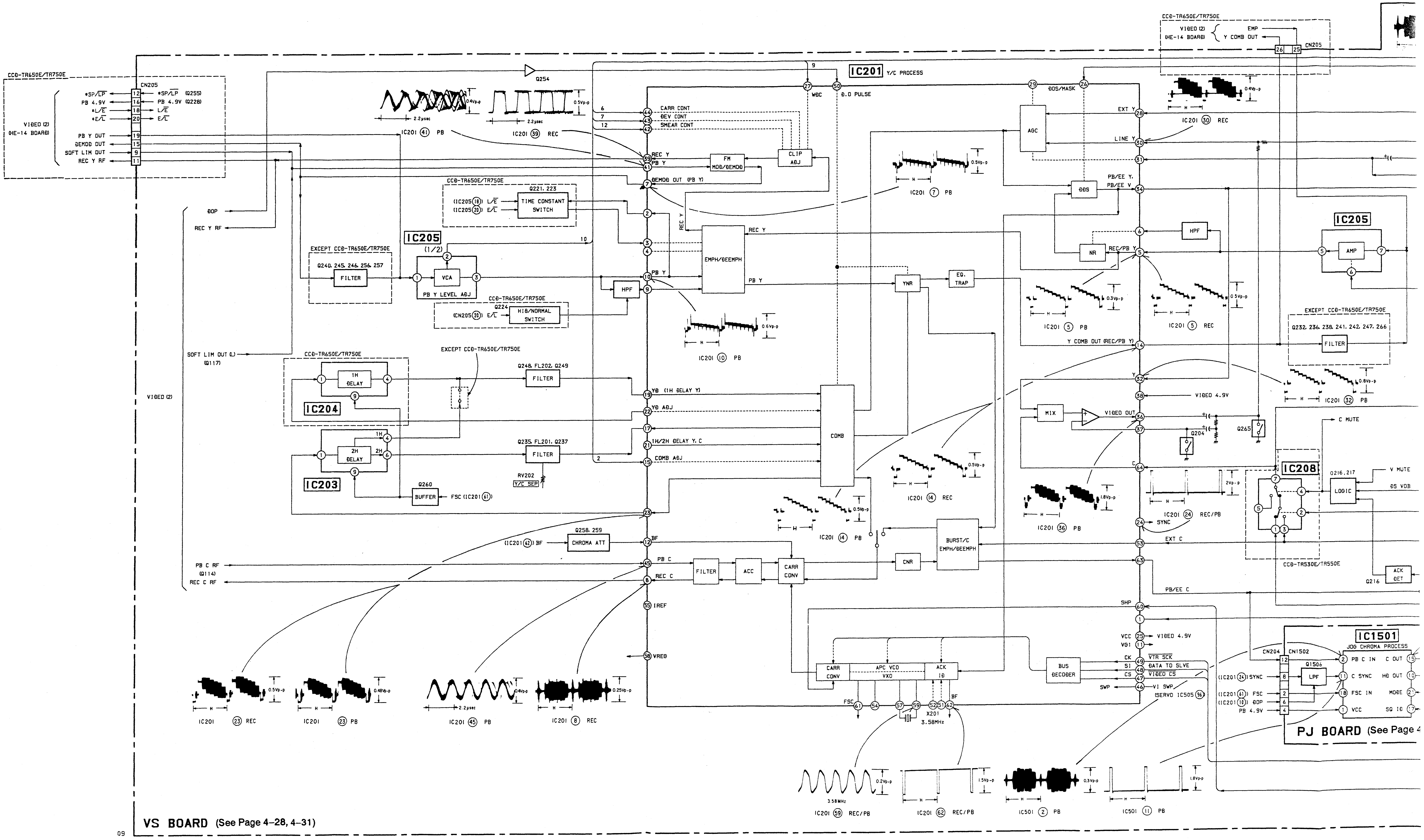

age 4-25, 4-28, 4-31, 4-34, 4-37)
DATA TO SLAVE . DATA TO MASTER . VTR SCK
M903
LOADING MOTOR
4-49)
LOAD. UN LOAD
LOADING MOTOR DRIVE
IC507 (1/4)
LOAD . UN LOAD
IC505
SYSTEM CONTROL / SERVO
IC501
EEPROM
IC503
CCD-TR750E
LCD UNIT
S001
MODE SWITCH
MSW 0-2
S005 C.C. DOWN
CC DOWN
R009
DEW SENSOR
DEW SENS
DEW
TAPE TOP SENSOR
TOP SENS
Q503 (1/2)
TAPE TOP DETECT
TOP SENS
SYSTEM CONTROL
CHIP SELECT
MODE CONTROL (MASTER)
H001
T REEL FG SENSOR
H002
S REEL FG SENSOR
Q001
Q002
TAPE END SENSOR
IC507 (1/4)
T REEL (+), (-)
T REEL FG AMP
S REEL (+), (-)
S REEL FG AMP
T REEL FG
S REEL FG
VIDEO, AUDIO, SERVO, CONTROL SIG
END SENS
Q503 (1/2)
TAPE END DETECT
END SENS
T/E LED ON
S002
ME/MP SW
MP/HI8-MP
REC PROOF SW
ARD
49)
IC507 (1/4)
D PG . D FG
WAVE SHAPER
DRUM PG . DRUM FG
(See Page 4-49) SL-38 BOARD (1/2)
CLOO . SP/LP DET
VTR DD ON
CAM DD ON
CC DOWN
SIRCS SIG
EJECT, START/STOP
K AD IN 0, 1
VTR MODE SW, CAM+STBY MODE SW
BRIGHT A, B
DATE, TIME
K AD 2-4
BUZZER
BACK UP VDD
IC502
BACK UP VDD SWITCH
VTR UNREG
(See Page 4-49) IC507 (1/4)
LANC I/O
SL-38 BOARD (1/2)
(See Page 4-53, 4-61)
AU-165/169 BOARD* (1/2)
(See Page 4-57, 4-65)
MA-179/199 BOARD * (1/2)
REMOTE CONTROL RECEIVER
IC002
CONTROL SWITCH BLOCK (FK)
ZOOM SW
ZOOM SWITCH
S102, 103
EJECT, START/STOP KEY
S104-106, 109-111, 100
S101
VTR FUNCTION KEY
STANDBY SWITCH
CONTROL SWITCH BLOCK (CK)
S223
POWER SWITCH
CCD-TR750E
MAN FOCUS 1, 2
S220
BRIGHT DIAL
S219
FOCUS MANUAL
S201-222
DDS KEK
S201-206, 217
CAMERA FUNCTION KEY MENUKEY
ZB-2 BOARD
(See Page 4-46)
BU101 BUZZER
L1101 LITHIUM BATTERY
LANC SIG
J902
REMOTE
DD-60/66 BOARD(1/4)* (See Page 4-79)
DATA TO SLAVE, DATA TO MASTER
IC901 (1/2)
DRUM VS
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
CAP VS
(See Page 4-79) DD-60/66* BOARD (1/4)
DRUM ERROR
IC506 (1/2)
LPF
LPF
DRUM PWM
CAP ERROR
CAP PWM
SERVO
RF SWP
CAP FG
REF PILOT
ATF ERROR
CAM DD ON
VTR DD ON
CAM 15V
CAM -8.5V
CAM 5V
D5V
D3.6V
R/P 5V
MT 5V
EVF 5V
AU 5V
VID 5V
SS 3.6V
MOTOR UNREG
VTR UNREG
EVF Y/C
DD-60/66 BOARD (1/4)*
(See Page 4-79)
IC901 (1/2)
CAMERA DC/DC CONVERTER
VTR DC/DC CONVERTER
MAIN BATTERY
EXCEPT CCD-TR570E
VF-65 BOARD
(See Page 4-68)
DY
H V
DH1, DH2
T901
HV
H
H OUT
IC906
CRT DRIVE
EVF Y
G1
V901 CRT
CCD-TR570E
VF-67 BOARD
(See Page 4-74)
IC903
EVR
ADJUST VOLTAGE
IC901
EVF Y
EVF C
RGB DECODER
R
G
B
IC902
TIMING GENERATOR
13.5V
12V
LCD PANEL
(See Page 4-74)
LB-35 BOARD
EVF 15V
REG
IC852
EVF UNREG
INVERTER (DC/AC CONVERTER)
IC851
BACK LIGHT
VF-66 BOARD (See Page 4-73)

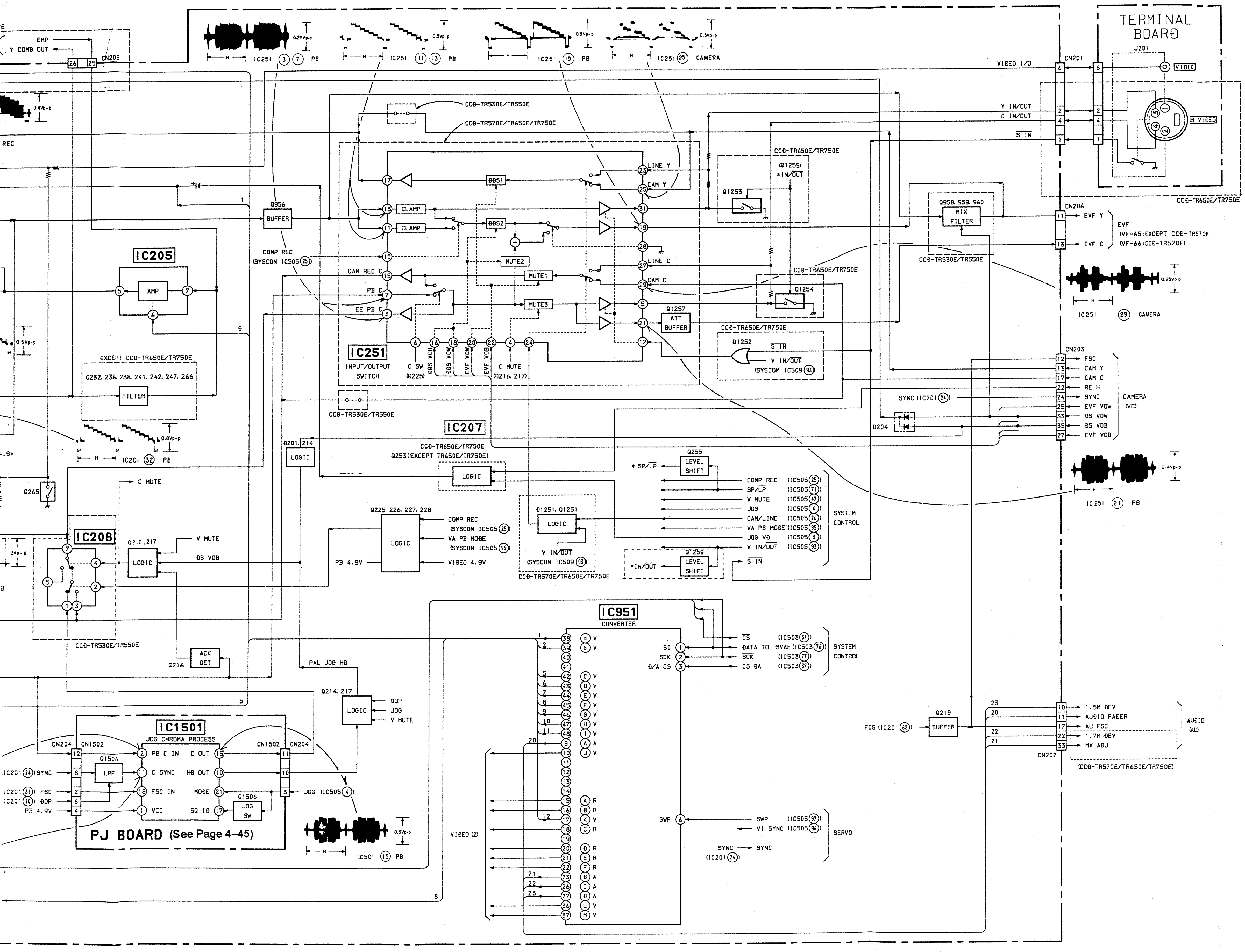
3-2. CAMERA BLOCK DIAGRAM


VC BOARD (See Page 4-11, 4-14, 4-17, 4-19)
FP-89 BOARD (See Page 4-6)
IC691 CCD IMAGER
Q691, 692 BUFFER
W691
CN701
IC703 SIGNAL SEPARATION AGC
AGC
CLAMP
IC704 A/D CONVERTER
CAM CLAMP
REF TOP
REF BOTTOM
IC701 V DRIVE
DC GENERATOR
Q701 DC BIAS
IC691 ⑧
IC691 ① ②
IC691 ③ ④
IC703 ㉕
IC703 ⑧
IC704 ①
IC602 (74)
IC702 ⑤
(See Page 4-8)
FP-49 BOARD (EXCEPT CCD-TR650E)
SE691 PITCH SENSOR
SE692 YAW SENSOR
(EXCEPT CCD-TR650E)
CN755
LPF
IC775 (1/2)
IC774 (1/4)
IC773
IC772
IC776 A/D CONVERTER
IC777 STEADY SHOT CONTROL
X775 12MHz
12MHz
IC777 ㊵
ZOOM LENS UNIT
M904 IRIS METER
ZOOM SENSER
FOCUS SENSER
M906 ZOOM MOTOR
M905 FOCUS MOTOR
CN751
IC751 (1/2) IRIS DRIVE
IC752 (1/3) IRIS DRIVE
IC755 IRIS PWM
IC752 (1/3) HALL BIAS CONTROL
IC751 (1/2) HALL AMP
Q752
IC752 (1/3) HALL GAIN CONTROL
IC603 D/A CONVERTER (EVR)
IC753 ①
IC753 ②
IC754 ZOOM MOTOR DRIVE FOCUS MOTOR DRIVE
IC753 ZOOM/FOCUS PRE DRIVE
X601 24MHz

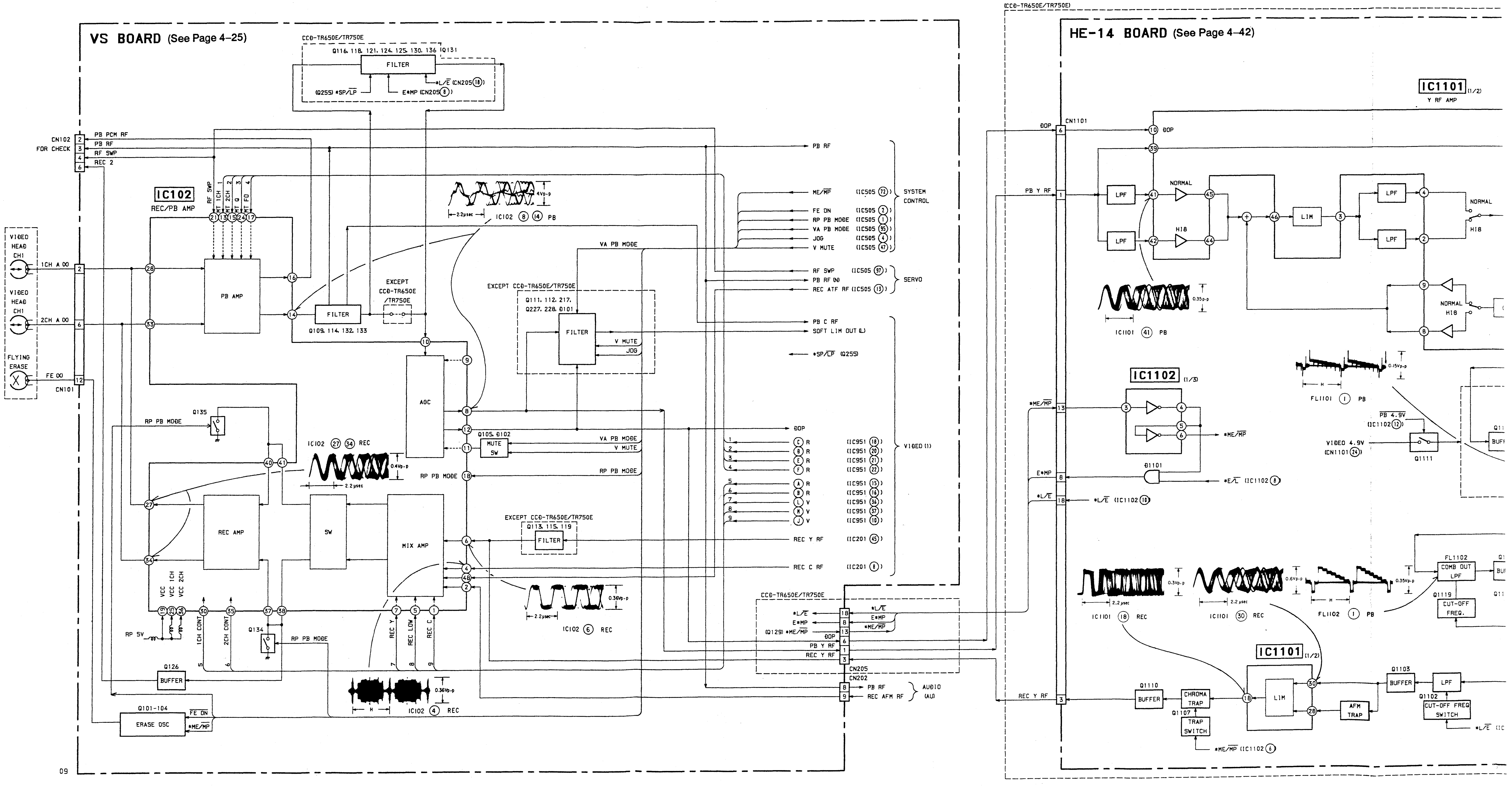

IC701
V DRIVE
IC702
TIMING GENERATOR
IC705
DEFECT COMPENSATION
X701
28.375MHz
PRIME OSCRATION
IC702 ⑫
IC702 ⑤
IC613
ZOOM PROCESS
EXCEPT CCD-TR650E
IC604
CHARACTER MIX
CCD-TR530E/TR550E
WHITE LEVEL
BLACK LEVEL
IC609
D/A CONVERTER
DIGITAL CAMERA PROCESS
D/A CONV
VREF Y
VREF C
*3:CCD-TR650E
*2:OTHER MODELS
Q604
BUFFER
Q605
BUFFER
CCD-TR570E/TR650E/TR750E
Y LPF
CHROMA LPF
BUFFER
CN601
CAM Y
CAM C
VIDEO (1) (VS)
FSC
REG H
PB SYNC
OS VDW
OS VDB
EVF VDW
PB V
SYS RESET
DATA TO SLVE
CS OSD
SCK
SYSTEM CONTROL (VS)
FLD
CAM VD
NEXT CAM
DATA TO MSTR
CS SG
ZOOM SW
MAN FOCUS 2
MAN FOCUS 1
IC614
ON SCREEN DISPLAY
IC609 ㊼
IC609 ⑱
IC609 ㊾
IC609 ㉗
IC609 ㊻
IC609 ⑳
IC609 ㊳
IC609 ⑲
IC609 ⑥⑨
IC609 ⑦⓪
IC610 ⑭
IC610 ⑤④
IC755
IRIS PWM
HALL A/D
IC603
D/A CONVERTER (EVR)
IC602
CAMERA CONTROL
X601
24MHz
IC611
OPTICAL DETECTOR
*3:CCD-TR750E:E,AUS
*2:OTHER MODELS
IC610
SYNC GENERATOR
SLAVE COUNTER
MASTER COUNTER
AFC
PLL
LPF
SERIAL LATCH
IC753
ZOOM/FOCUS PRE DRIVE
IC601
EEP ROM
D3.6V
V SUB CONT
Q701
DC BIAS
DC GENERATOR

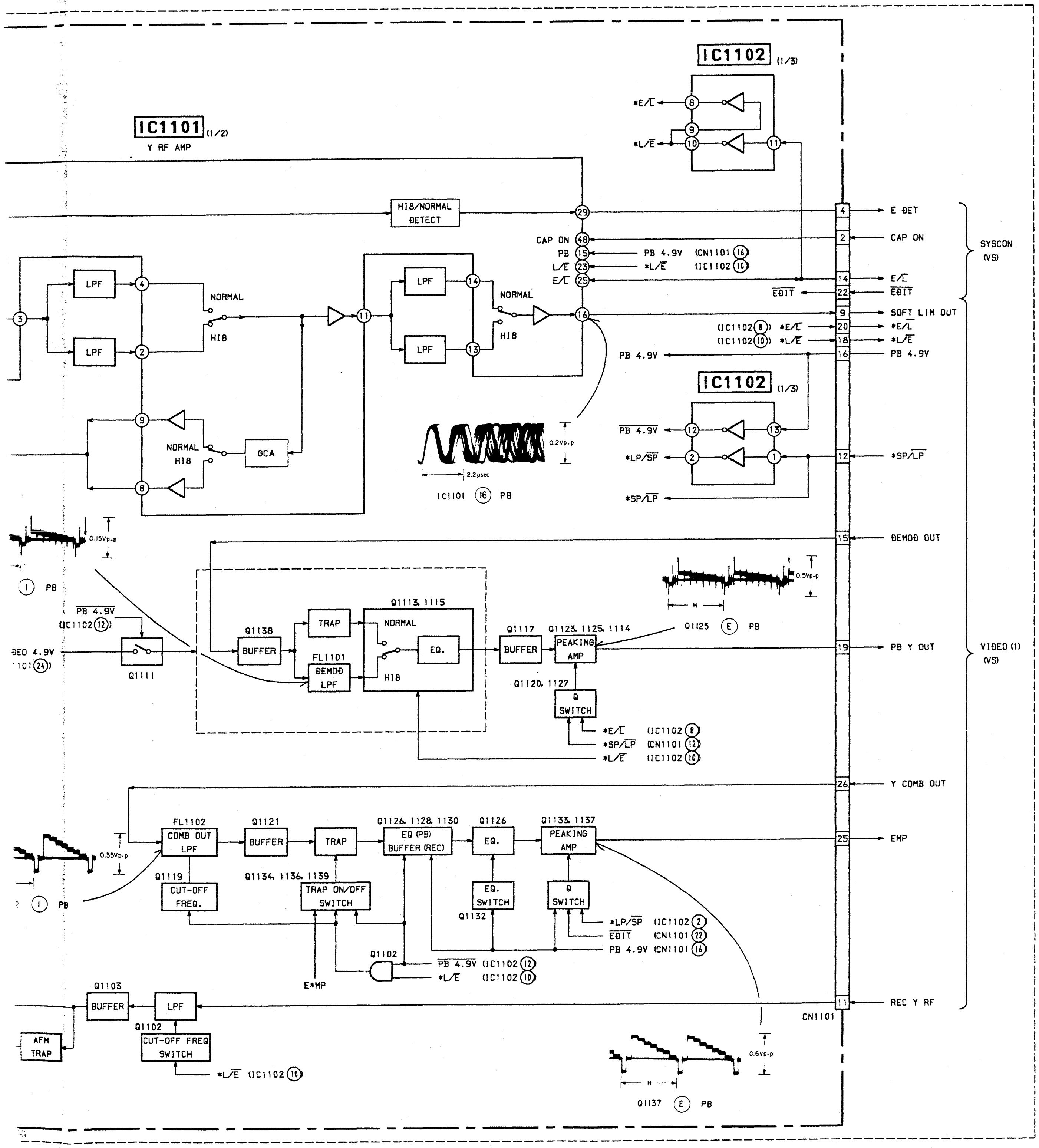
3-3. VIDEO (1) BLOCK DIAGRAM


CCD-TR650E/TR750E
VIDEO (2) (HE-14 BOARD)
CN205
*SP/LP
PB 4.9V
*L/E
*E/L
*SP/LP (Q255)
PB 4.9V (Q228)
L/E
E/L
PB Y OUT
DEMOD OUT
SOFT LIM OUT
REC Y RF
Q254
IC201 Y/C PROCESS
IC201 (41) PB
IC201 (39) REC
WDC
D.D PULSE
CARR CONT
DEV CONT
SMEAR CONT
REC Y
PB Y
FM MOD/DEMOD
CLIP ADJ
DEMOD OUT (PB Y)
DOP
REC Y RF
Q221, 223
(IC205(18)) L/E
(IC205(20)) E/L
TIME CONSTANT SWITCH
IC205 (1/2)
EXCEPT CCD-TR650E/TR750E
Q240, 245, 246, 256, 257
FILTER
VCA
PB Y LEVEL ADJ
Q224
(CN205(20)) E/L
HI8/NORMAL SWITCH
HPF
EMPH/DEEMPH
IC201 (10) PB
SOFT LIM OUT (L) (Q117)
VIDEO (2)
1H DELAY
IC204
Q248, FL202, Q249
FILTER
YD (1H DELAY Y)
YD ADJ
2H DELAY
IC203
Q235, FL201, Q237
1H/2H DELAY Y, C
COMB ADJ
RV202 Y/C SEP
Q260 BUFFER
FSC (IC201 (61))
COMB
YNR
EQ. TRAP
(IC201(62)) BF
Q258, 259 CHROMA ATT
PB C RF (Q114)
REC C RF
PB C
REC C
FILTER
ACC
CARR CONV
CNR
BURST/C EMPH/DEEMPH
IREF
VREG
CARR CONV
APC VCO VXO
ACK ID
FSC
BF
X201 3.58MHz
IC201 (23) REC
IC201 (23) PB
IC201 (45) PB
IC201 (8) REC
IC201 (59) REC/PB
IC201 (62) REC/PB
IC501 (2) PB
IC501 (11) PB
IC201 (7) PB
IC201 (14) PB
IC201 (14) REC
IC201 (5) PB
IC201 (5) REC
IC201 (24) REC/PB
IC201 (36) PB
IC201 (30) REC
IC201 (32) PB
DOS/MASK
AGC
EXT Y
LINE Y
PB/EE Y, PB/EE V
DDS
NR
REC/PB Y
HPF
Y COMB OUT (REC/PB Y)
VIDEO 4.9V
MIX
VIDEO OUT
Q204
Q265
SYNC
EXT C
PB/EE C
SHP
VCC
VGI
CK
SI
CS
VTR SCK
DATA TO SLVE
VIDEO CS
VI SWP
(SERVO IC505 (96))
SWP
BUS DECODER
CCD-TR650E/TR750E
VIDEO (2) (HE-14 BOARD)
EMP
Y COMB OUT
IC205
AMP
Q232, 236, 238, 241, 242, 247, 266
FILTER
C MUTE
IC208
Q216, 217
LOGIC
V MUTE
DS VDD
CCD-TR530E/TR550E
ACK DET
Q216
IC1501
JOG CHROMA PROCESS
CN204
CN1502
Q1506
LPF
(IC201(24)) SYNC
(IC201(61)) FSC
(IC201(10)) DOP
PB 4.9V
PB C IN
C SYNC
FSC IN
VCC
C OUT
HD OUT
MODE
SQ ID
PJ BOARD (See Page 4
VS BOARD (See Page 4-28, 4-31)
09

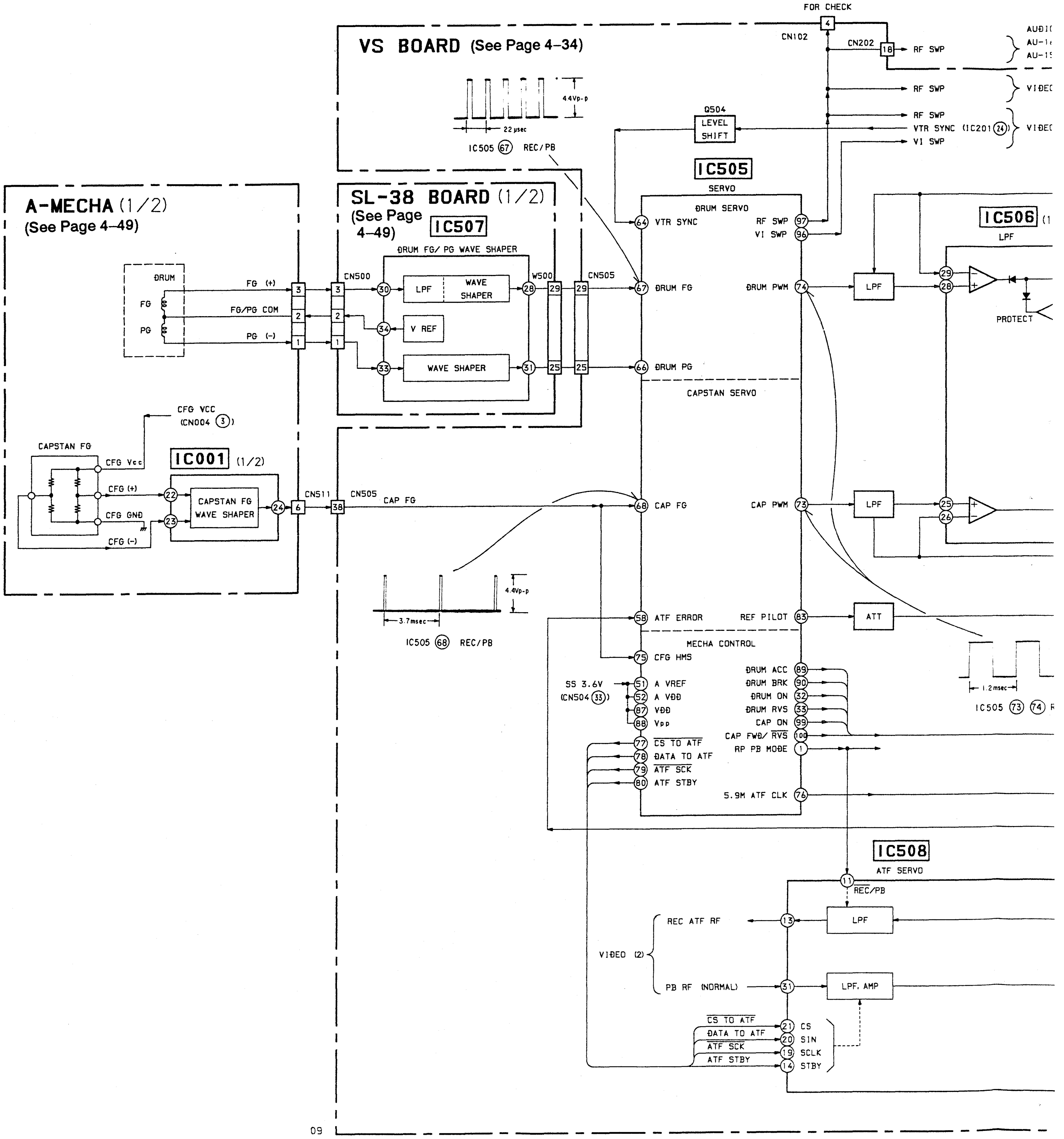

TERMINAL BOARD
J201
VIDEO
S VIDEO
VIDEO I/O
Y IN/OUT
C IN/OUT
S IN
CN201
CN206
EVF Y
EVF C
EVF
(VF-65:EXCEPT CCD-TR570E
(VF-66:CCD-TR570E)
CCD-TR650E/TR750E
CCD-TR530E/TR550E
CCD-TR570E/TR650E/TR750E
Q958, 959, 960
MIX FILTER
IC251 ⑫⑨ CAMERA
IC251 ㉑ PB
IC251 ③⑦ PB
IC251 ⑪⑬ PB
IC251 ⑲ PB
IC251 ㉕ CAMERA
CN203
FSC
CAM Y
CAM C
RE H
SYNC
EVF VOW
DS VOW
DS VOB
EVF VOB
CAMERA (VC)
SYNC (IC201 ㉔)
Q204
IC205
AMP
IC251
INPUT/OUTPUT SWITCH
LINE Y
CAM Y
LINE C
CAM C
CLAMP
DDS1
DDS2
MUTE1
MUTE2
MUTE3
Q1257 ATT BUFFER
Q1253
Q1254
Q1259
*IN/OUT
Q1252
S IN
V IN/OUT
(SYSCOM IC509 ㊾)
CAM REC C
PB C
EE PB C
COMP REC (SYSCON IC505 ㉕)
C SW (Q225)
DS VOB
DS VOW
EVF VOW
EVF VOB
C MUTE (Q216, 217)
Q956 BUFFER
EMP
Y COMB OUT
CN205
REC
EXCEPT CCD-TR650E/TR750E
Q232, 236, 238, 241, 242, 247, 266
FILTER
IC201 ㉜ PB
IC207
CCD-TR650E/TR750E
Q253(EXCEPT TR650E/TR750E)
LOGIC
Q201, 214
Q255 LEVEL SHIFT
* SP/LP
COMP REC (IC505 ㉕)
SP/LP (IC505 ⑦①)
V MUTE (IC505 ④⑦)
JOG (IC505 ④)
CAM/LINE (IC505 ㉖)
VA PB MODE (IC505 ㊾)
JOG VD (IC505 ③)
V IN/OUT (IC505 ㊸)
SYSTEM CONTROL
Q1251, Q1251
V IN/OUT (SYSCOM IC509 ㊾)
CCD-TR570E/TR650E/TR750E
Q1259 LEVEL SHIFT
*IN/OUT
S IN
C MUTE
Q265
IC208
Q216, 217
V MUTE
DS VOB
CCD-TR530E/TR550E
Q225, 226, 227, 228
COMP REC (SYSCON IC505 ㉕)
VA PB MODE (SYSCON IC505 ㊾)
VIDEO 4.9V
PB 4.9V
Q216 ACK DET
PAL JOG HD
Q214, 217
DOP
JOG
V MUTE
IC951
CONVERTER
SI
SCK
D/A CS
CS (IC503 ㉞)
DATA TO SVAE (IC503 ⑦⑥)
SCK (IC503 ⑦⑦)
CS DA (IC503 ③⑦)
SWP (IC505 ⑨⑦)
VI SYNC (IC505 ⑨⑥)
SERVO
SYNC (IC201 ㉔)
VIDEO (2)
FCS (IC201 ㊷)
Q219 BUFFER
1.5M DEV
AUDIO FADER
AU FSC
1.7M DEV
MX ADJ
AUDIO (AU)
CN202
(CCD-TR570E/TR650E/TR750E)
IC1501
JOG CHROMA PROCESS
PB C IN
C OUT
C SYNC
HD OUT
FSC IN
MODE
VCC
SQ ID
Q1506 LPF
Q1506 JOG SW
CN204
CN1502
IC201 ㉔ SYNC
IC201 ⑥① FSC
IC201 ⑩ DOP
PB 4.9V
JOG (IC505 ④)
PJ BOARD (See Page 4-45)
IC501 ⑮ PB
0.25Vp-p
0.5Vp-p
0.8Vp-p
0.4Vp-p
2Vp-p
0.3Vp-p

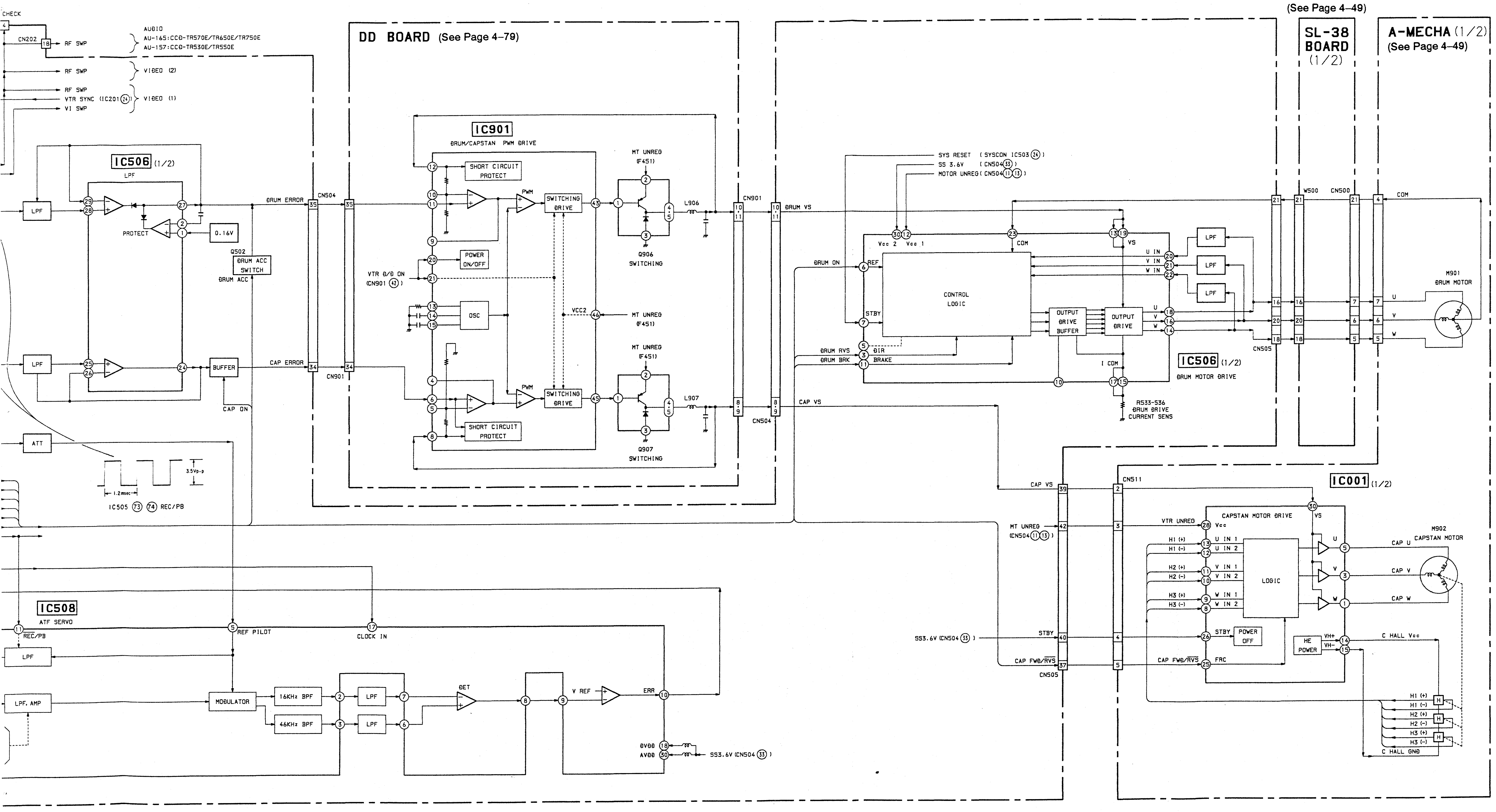
3-4. VIDEO (2) BLOCK DIAGRAM


VS BOARD (See Page 4-25)
CCD-TR650E/TR750E
Q116, 118, 121, 124, 125, 130, 136 (Q131)
FILTER
(Q255) *SP/LP
E*MP (CN205 ⑧)
*L/E (CN205 ⑱)
CN102 FOR CHECK
PB PCM RF
PB RF
RF SWP
REC 2
IC102
REC/PB AMP
RF SWP
1CH
2CH
Q
FO
VIDEO HEAD CH1
VIDEO HEAD CH1
1CH A (X)
2CH A (X)
FLYING ERASE
FE (X)
CN101
PB AMP
FILTER
Q109, 114, 132, 133
EXCEPT CCD-TR650E/TR750E
IC102 ⑧ ⑭ PB
4Vp-p
2.2μsec
EXCEPT CCD-TR650E/TR750E
Q111, 112, 217, Q227, 228, Q101
FILTER
V MUTE
JOG
VA PB MODE
AGC
Q105, Q102
MUTE SW
RP PB MODE
Q135
IC102 ㉗ ㉞ REC
0.4Vp-p
REC AMP
SW
MIX AMP
EXCEPT CCD-TR650E/TR750E
Q113, 115, 119
FILTER
IC102 ⑥ REC
0.36Vp-p
VCC
VCC 1CH
VCC 2CH
1CH CONT
2CH CONT
REC Y
REC LOW
REC C
RP 5V
Q134
Q126
BUFFER
Q101-104
ERASE OSC
FE ON
*ME/MP
IC102 ④ REC
H
09
PB RF
ME/MP (IC505 ㉒)
FE ON (IC505 ②)
RP PB MODE (IC505 ①)
VA PB MODE (IC505 ㉟)
JOG (IC505 ④)
V MUTE (IC505 ㊼)
SYSTEM CONTROL
RF SWP (IC505 ㊲)
PB RF (N)
REC ATF RF (IC505 ⑬)
SERVO
PB C RF
SOFT LIM OUT (L)
*SP/LP (Q255)
80P
Ⓒ R (IC951 ⑱)
Ⓓ R (IC951 ⑳)
Ⓔ R (IC951 ㉑)
Ⓕ R (IC951 ㉒)
Ⓐ R (IC951 ⑬)
Ⓑ R (IC951 ⑭)
Ⓛ V (IC951 ㊱)
Ⓗ V (IC951 ㊲)
Ⓙ V (IC951 ⑩)
VIDEO (1)
REC Y RF (IC201 ㊺)
REC C RF (IC201 ⑧)
CCD-TR650E/TR750E
*L/E
E*MP
(Q129) *ME/MP
80P
PB Y RF
REC Y RF
CN205
CN202
PB RF
REC AFM RF
AUDIO (AU)
(CCD-TR650E/TR750E)
HE-14 BOARD (See Page 4-42)
CN1101
IC1101 (1/2)
Y RF AMP
80P
PB Y RF
LPF
NORMAL
HI8
LIM
IC1101 ㊶ PB
0.35p-p
IC1102 (1/3)
*ME/MP
Q1101
*E/L (IC1102 ⑧)
*L/E (IC1102 ⑱)
FL1101 ① PB
0.15Vp-p
PB 4.9V (IC1102 ⑫)
VIDEO 4.9V (CN1101 ㉔)
Q1111
IC1101 ⑱ REC
0.3Vp-p
IC1101 ㉚ REC
0.6Vp-p
FL1102 ① PB
0.35Vp-p
FL1102
COMB OUT LPF
Q1119
CUT-OFF FREQ.
IC1101 (1/2)
LIM
AFM TRAP
Q1110
BUFFER
CHROMA TRAP
Q1107
TRAP SWITCH
*ME/MP (IC1102 ⑥)
Q1103
BUFFER
LPF
Q1102
CUT-OFF FREQ SWITCH
REC Y RF


IC1101 (1/2)
Y RF AMP
IC1102 (1/3)
*E/L
*L/E
HI8/NORMAL DETECT
CAP ON 48
PB 15
L/E 23
E/L 25
PB 4.9V (CN1101 16)
*L/E (IC1102 10)
LPF
NORMAL
HI8
GCA
0.2Vp-p
2.2μsec
IC1101 16 PB
PB 4.9V
*LP/SP
*SP/LP
EDIT
(IC1102 8) *E/L
(IC1102 10) *L/E
E DET
CAP ON
E/L
SOFT LIM OUT
PB 4.9V
*SP/LP
SYSCON (VS)
DEMOD OUT
0.15Vp-p
1 PB
PB 4.9V (IC1102 12)
EO 4.9V
101 24
Q1111
Q1138 BUFFER
TRAP
FL1101 DEMOD LPF
Q1113, 1115
EQ.
Q1117 BUFFER
Q1123, 1125, 1114 PEAKING AMP
Q1120, 1127 Q SWITCH
*E/L (IC1102 8)
*SP/LP (CN1101 12)
*L/E (IC1102 10)
0.5Vp-p
H
Q1125 E PB
PB Y OUT
VIDEO (1) (VS)
Y COMB OUT
0.35Vp-p
FL1102 COMB OUT LPF
Q1121 BUFFER
TRAP
Q1126, 1128, 1130 EQ (PB) BUFFER (REC)
Q1126 EQ.
Q1133, 1137 PEAKING AMP
EMP
Q1119 CUT-OFF FREQ.
Q1134, 1136, 1139 TRAP ON/OFF SWITCH
EQ. SWITCH Q1132
Q SWITCH
*LP/SP (IC1102 2)
EDIT (CN1101 22)
PB 4.9V (CN1101 16)
Q1102
PB 4.9V (IC1102 12)
*L/E (IC1102 10)
E*MP
Q1103 BUFFER
LPF
Q1102 CUT-OFF FREQ SWITCH
*L/E (IC1102 10)
AFM TRAP
REC Y RF
CN1101
0.6Vp-p
Q1137 E PB

3-5. SERVO BLOCK DIAGRAM

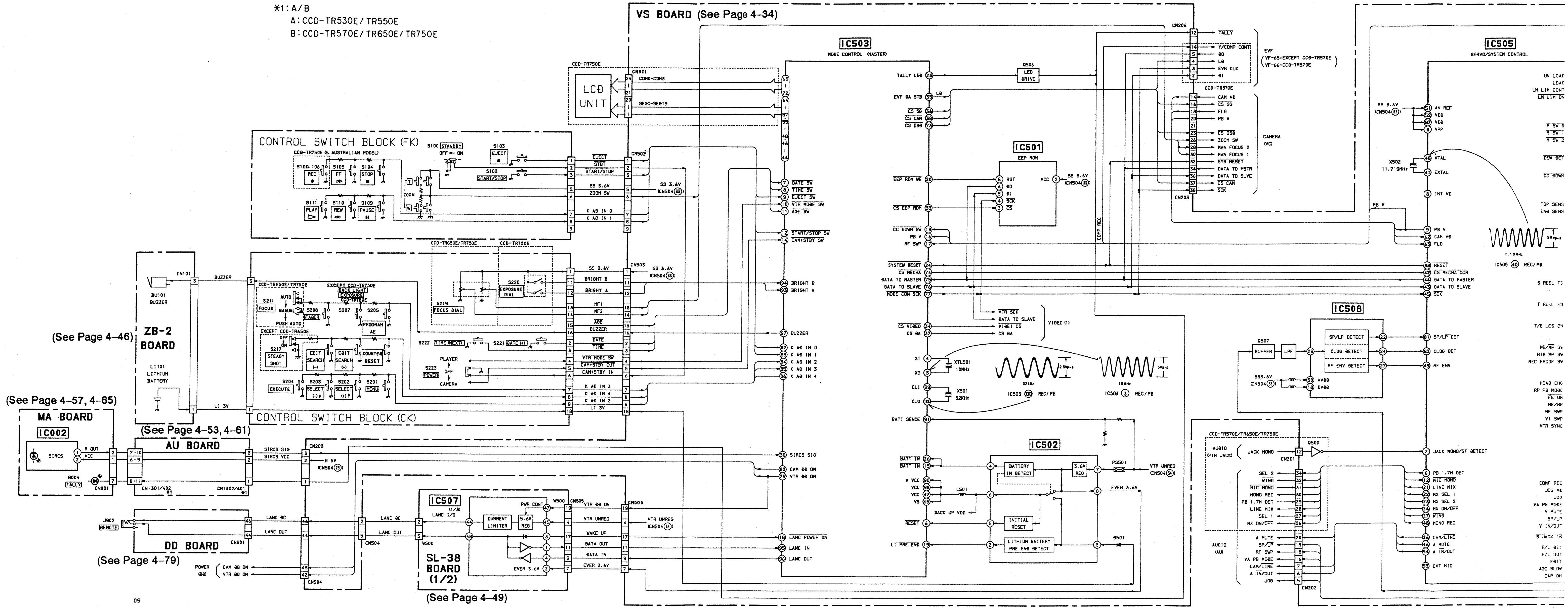

FOR CHECK
CN102
CN202
RF SWP
AUDI
AU-1
AU-1
VS BOARD (See Page 4-34)
4.4Vp-p
22μsec
IC505 (67) REC/PB
RF SWP
VIDE
Q504
LEVEL SHIFT
RF SWP
VTR SYNC (IC201 (24))
VI SWP
VIDE
IC505
SERVO
DRUM SERVO
VTR SYNC
RF SWP
VI SWP
A-MECHA (1/2)
(See Page 4-49)
SL-38 BOARD (1/2)
(See Page 4-49)
IC507
DRUM FG/ PG WAVE SHAPER
CN500
W500
CN505
DRUM
FG
PG
FG (+)
FG/PG COM
PG (-)
LPF
WAVE SHAPER
V REF
WAVE SHAPER
DRUM FG
DRUM PWM
DRUM PG
LPF
IC506
LPF
PROTECT
CAPSTAN SERVO
CFG VCC
(CN004 (3))
CAPSTAN FG
CFG Vcc
CFG (+)
CFG GND
CFG (-)
IC001 (1/2)
CAPSTAN FG WAVE SHAPER
CN511
CN505
CAP FG
CAP FG
CAP PWM
LPF
4.4Vp-p
3.7msec
IC505 (68) REC/PB
ATF ERROR
REF PILOT
ATT
MECHA CONTROL
CFG HMS
SS 3.6V
(CN504 (33))
A VREF
A VDD
VDD
Vpp
DRUM ACC
DRUM BRK
DRUM ON
DRUM RVS
CAP ON
CAP FWD/ RVS
RP PB MODE
CS TO ATF
DATA TO ATF
ATF SCK
ATF STBY
5.9M ATF CLK
1.2msec
IC505 (73) (74)
IC508
ATF SERVO
REC/PB
REC ATF RF
LPF
VIDEO (2)
PB RF (NORMAL)
LPF, AMP
CS TO ATF
DATA TO ATF
ATF SCK
ATF STBY
CS
SIN
SCLK
STBY
09

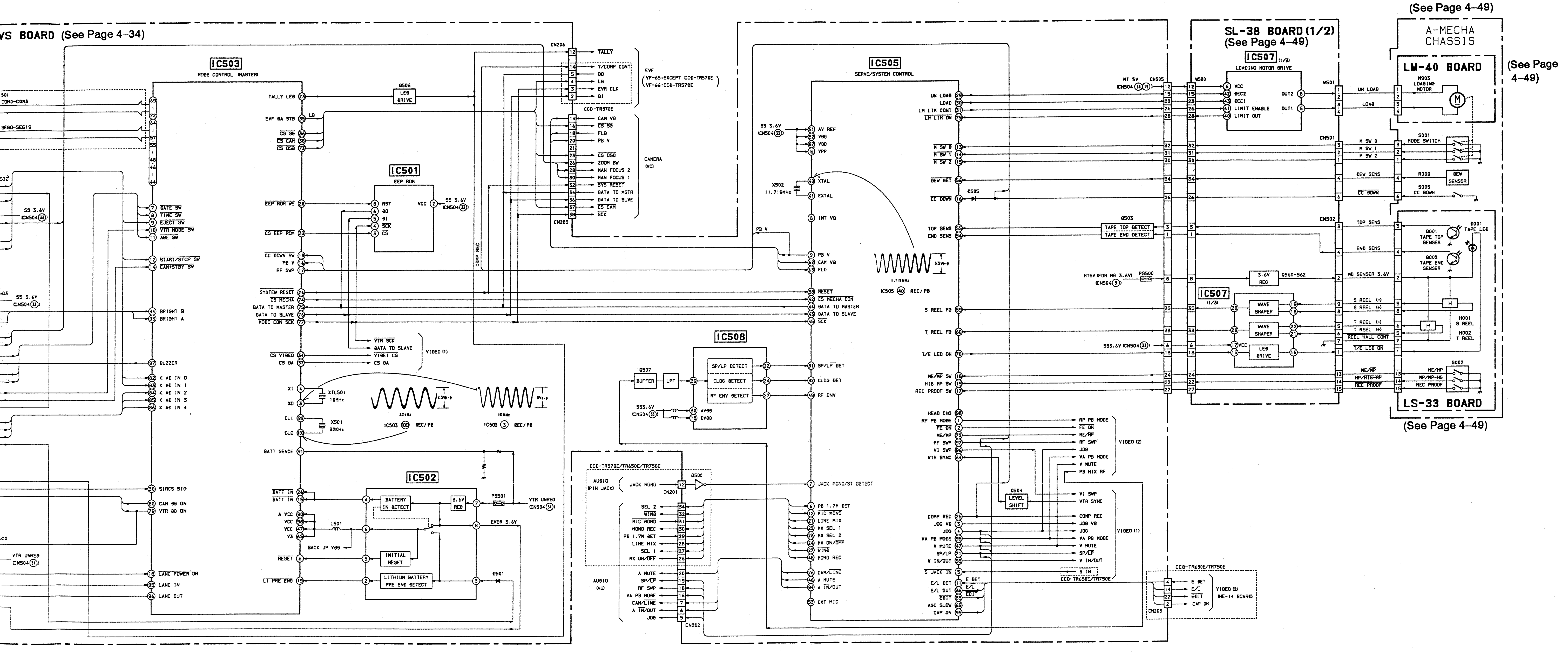

CHECK
CN202
RF SWP
AUDIO
AU-165:CCD-TR570E/TR650E/TR750E
AU-157:CCD-TR530E/TR550E
RF SWP
VIDEO (2)
RF SWP
VTR SYNC (IC201 ㉔)
VI SWP
VIDEO (1)
IC506 (1/2)
LPF
PROTECT
0.16V
Q502
DRUM ACC SWITCH
DRUM ACC
DRUM ERROR
CN504
BUFFER
CAP ERROR
CN901
CAP ON
ATT
3.5Vp-p
1.2msec
IC505 ㉝ ㉞ REC/PB
IC508
ATF SERVO
REC/PB
REF PILOT
CLOCK IN
MODULATOR
16KHz BPF
46KHz BPF
DET
V REF
ERR
DVDD
AVDD
SS3.6V (CN504 ㉝)
LPF, AMP
DD BOARD (See Page 4-79)
IC901
DRUM/CAPSTAN PWM DRIVE
SHORT CIRCUIT PROTECT
PWM
SWITCHING DRIVE
POWER ON/OFF
VTR D/D ON (CN901 ㊷)
OSC
VCC2
MT UNREG (F451)
Q906 SWITCHING
Q907 SWITCHING
L906
L907
DRUM VS
CAP VS
SYS RESET (SYSCON IC503 ㉔)
SS 3.6V (CN504 ㉝)
MOTOR UNREG (CN504 ⑪ ⑬)
Vcc 2
Vcc 1
COM
VS
DRUM ON
REF
STBY
CONTROL LOGIC
DRUM RVS
DRUM BRK
DIR
BRAKE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
U IN
V IN
W IN
I COM
IC506 (1/2)
DRUM MOTOR DRIVE
R533-536
DRUM DRIVE CURRENT SENS
CN505
(See Page 4-49)
SL-38 BOARD (1/2)
W500
CN500
A-MECHA (1/2)
(See Page 4-49)
M901
DRUM MOTOR
MT UNREG (CN504 ⑪ ⑬)
SS3.6V (CN504 ㉝)
CAP FWD/RVS
CN511
IC001 (1/2)
CAPSTAN MOTOR DRIVE
VTR UNREG
Vcc
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
U IN 1
U IN 2
V IN 1
V IN 2
W IN 1
W IN 2
LOGIC
POWER OFF
FRC
HE POWER
VH+
VH-
CAP U
CAP V
CAP W
M902
CAPSTAN MOTOR
C HALL Vcc
C HALL GND

CCD-TR530E/TR550E/TR570E/TR650E/TR750E

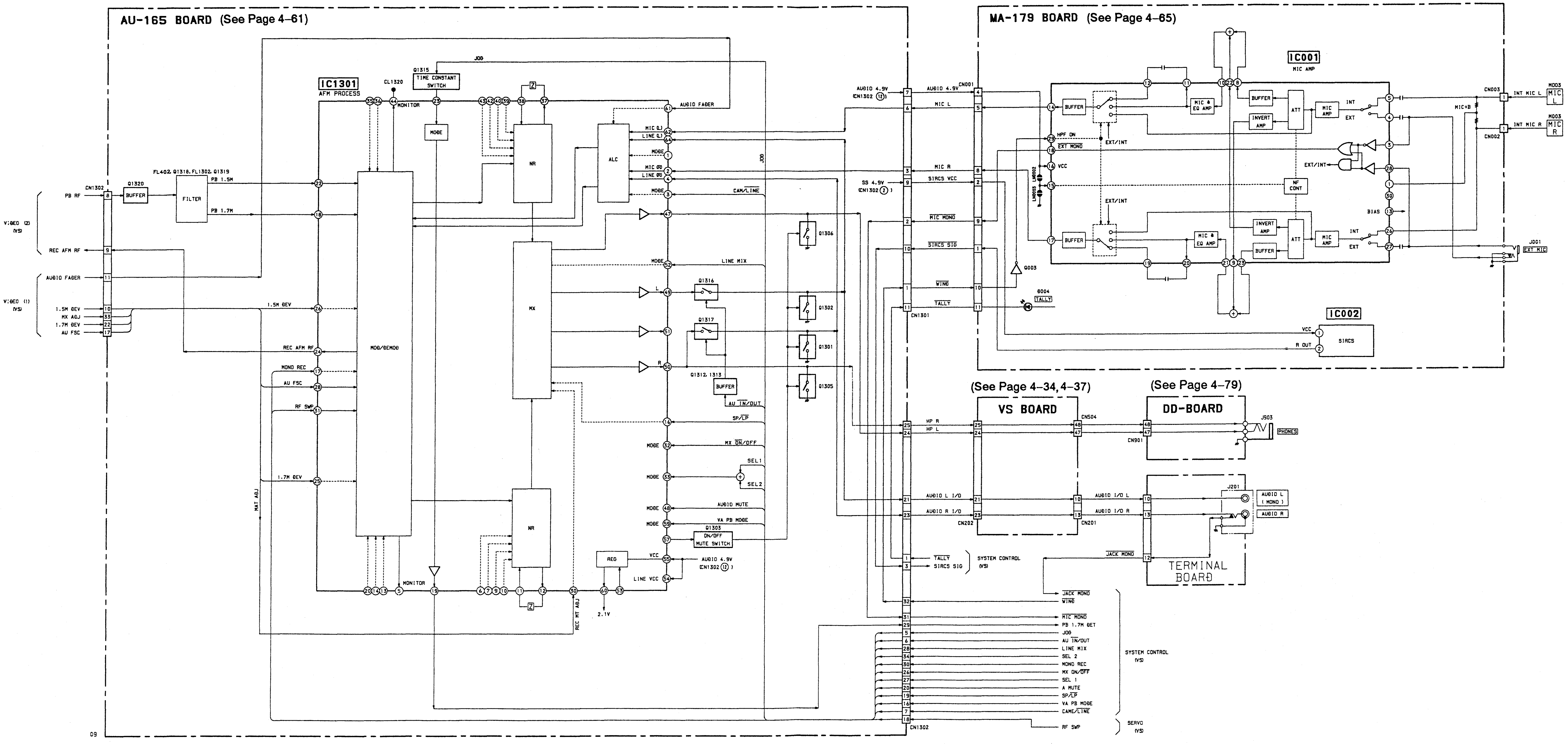
3-6. SYSTEM CONTROL BLOCK DIAGRAM

Note
✱1 : A/B
A : CCD-TR530E/TR550E
B : CCD-TR570E/TR650E/TR750E

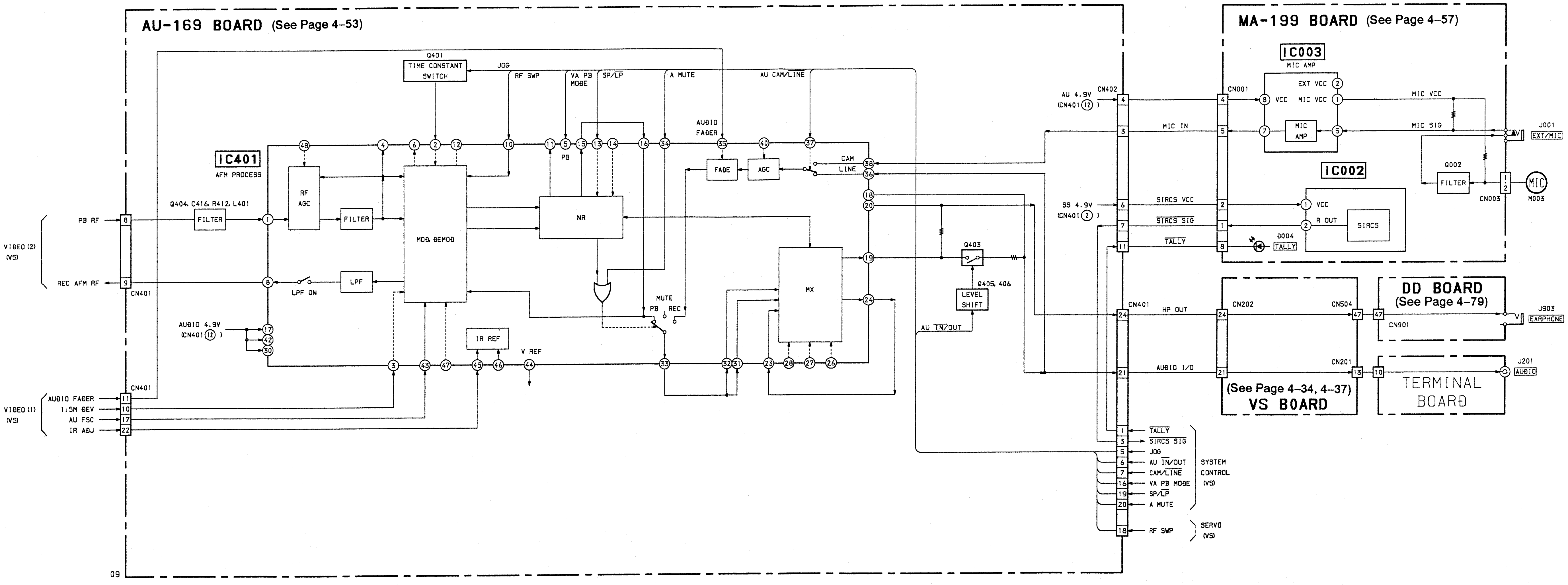

VS BOARD (See Page 4-34)
IC503 MODE CONTROL (MASTER)
IC501 EEP ROM
IC502
IC505 SERVO/SYSTEM CONTROL
IC508
IC507
LCD UNIT
CCD-TR750E
CONTROL SWITCH BLOCK (FK)
CONTROL SWITCH BLOCK (CK)
ZB-2 BOARD
(See Page 4-46)
MA BOARD
(See Page 4-57, 4-65)
IC002
AU BOARD
(See Page 4-53, 4-61)
DD BOARD
(See Page 4-79)
SL-38 BOARD (1/2)
(See Page 4-49)
BU101 BUZZER
L1101 LITHIUM BATTERY
J902 REMOTE
EVF
CAMERA (VC)
AUDIO (PIN JACK)
AUDIO (AU)
LITHIUM BATTERY PRE END DETECT
INITIAL RESET
BATTERY IN DETECT
3.6V REG
CURRENT LIMITER
5.6V REG
SP/LP DETECT
CLOG DETECT
RF ENV DETECT
BUFFER
LPF
XTL501 10MHz
X501 32KHz
X502 11.719MHz
IC503 (100) REC/PB
IC503 (3) REC/PB
IC505 (40) REC/PB
09


VS BOARD (See Page 4-34)
IC503
MODE CONTROL (MASTER)
IC501
EEP ROM
IC502
BATTERY IN DETECT
3.6V REG
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
IC505
SERVO/SYSTEM CONTROL
IC508
SP/LP DETECT
CLOG DETECT
RF ENV DETECT
Q506 LED DRIVE
Q507 BUFFER
LPF
Q503 TAPE TOP DETECT
TAPE END DETECT
Q504 LEVEL SHIFT
XTL501 10MHz
X501 32KHz
X502 11.719MHz
IC503 (100) REC/PB
IC503 (3) REC/PB
IC505 (40) REC/PB
EVF
(VF-65: EXCEPT CCD-TR570E)
(VF-66: CCD-TR570E)
CAMERA (VC)
VIDEO (1)
VIDEO (2)
AUDIO (AU)
AUDIO (PIN JACK)
CCD-TR570E/TR650E/TR750E
CCD-TR650E/TR750E
CN206
CN203
CN201
CN202
CN205
CN505
VIDEO (2) (KE-14 BOARD)
SL-38 BOARD (1/2)
(See Page 4-49)
IC507 (1/3)
LOADING MOTOR DRIVE
IC507 (1/3)
3.6V REG
Q560-562
WAVE SHAPER
LED DRIVE
A-MECHA CHASSIS
(See Page 4-49)
LM-40 BOARD
(See Page 4-49)
M903 LOADING MOTOR
S001 MODE SWITCH
DEW SENSOR
S005 CC DOWN
Q001 TAPE TOP SENSER
Q002 TAPE END SENSER
D001 TAPE LED
H001 S REEL
H002 T REEL
S002
LS-33 BOARD
(See Page 4-49)

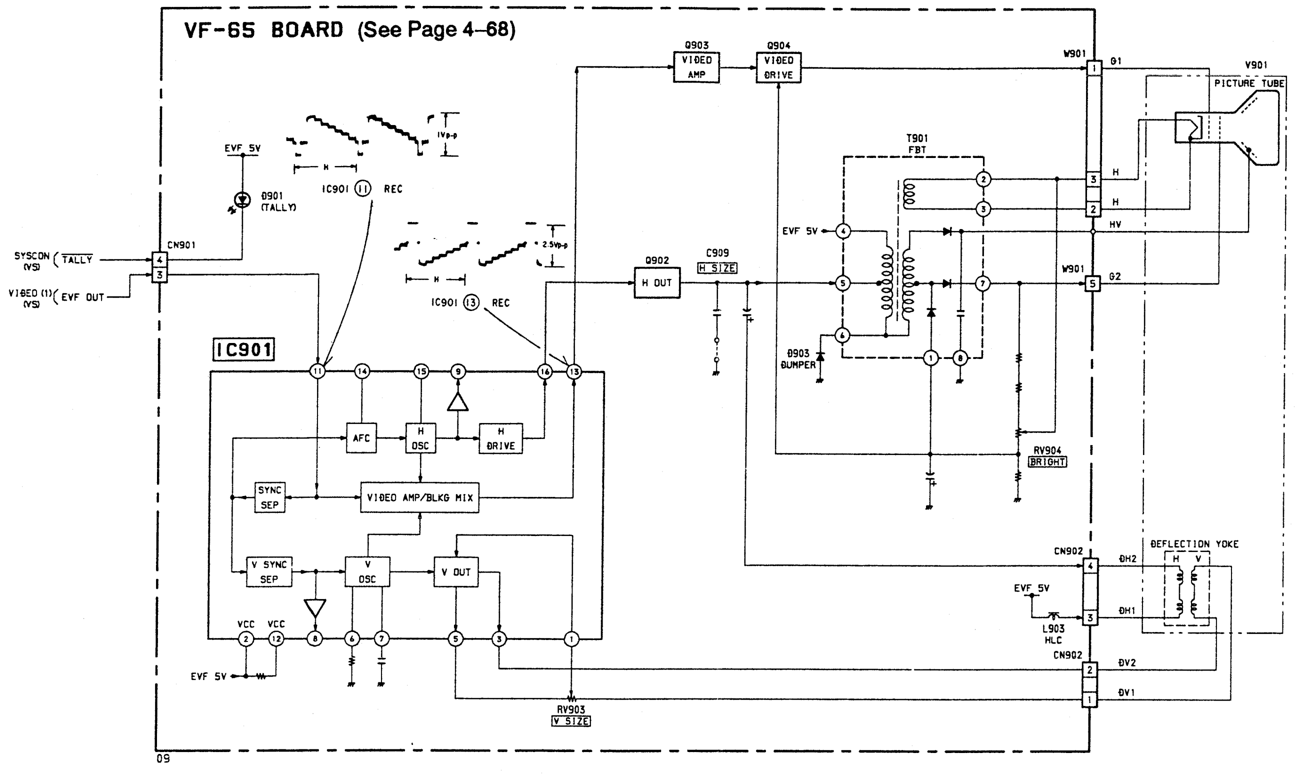
3-7. AUDIO (STEREO) BLOCK DIAGRAM (TR570E/TR650E/TR750E)


AU-165 BOARD (See Page 4-61)
IC1301
AFM PROCESS
CL1320
Q1315
TIME CONSTANT SWITCH
JOG
MONITOR
MODE
NR
ALC
MX
MOD/DEMOD
AUDIO FADER
MIC (L)
LINE (L)
MIC (R)
LINE (R)
CAM/LINE
LINE MIX
Q1316
Q1317
Q1312, 1313
BUFFER
AU IN/OUT
SP/LP
MX ON/OFF
SEL1
SEL2
AUDIO MUTE
VA PB MODE
Q1303
ON/OFF MUTE SWITCH
REG
VCC
LINE VCC
AUDIO 4.9V (CN1302 ⑫)
2.1V
REC MT ADJ
MAT ADJ
Q1306
Q1302
Q1301
Q1305
CN1302
Q1320
BUFFER
FL402, Q1318, FL1302, Q1319
FILTER
PB 1.5M
PB 1.7M
PB RF
REC AFM RF
AUDIO FADER
1.5M DEV
MX ADJ
1.7M DEV
AU FSC
MONO REC
RF SWP
VIDEO (2) (VS)
VIDEO (1) (VS)
MA-179 BOARD (See Page 4-65)
IC001
MIC AMP
CN001
AUDIO 4.9V (CN1302 ⑫)
AUDIO 4.9V
MIC L
MIC R
SS 4.9V (CN1302 ②)
SIRCS VCC
MIC MONO
SIRCS SIG
WIND
TALLY
CN1301
BUFFER
MIC & EQ AMP
INVERT AMP
ATT
MIC AMP
INT
EXT
EXT/INT
HPF ON
EXT MONO
VCC
NF CONT
BIAS
LN8002
LN8003
Q003
D004
TALLY
IC002
SIRCS
VCC
R OUT
CN003
INT MIC L
M003
MIC L
MIC+B
CN002
INT MIC R
MIC R
J001
EXT MIC
(See Page 4-34, 4-37)
VS BOARD
CN504
CN202
CN201
HP R
HP L
AUDIO L I/O
AUDIO R I/O
(See Page 4-79)
DD-BOARD
CN901
J903
PHONES
AUDIO I/O L
AUDIO I/O R
J201
AUDIO L (MONO)
AUDIO R
JACK MONO
TERMINAL BOARD
TALLY
SIRCS SIG
SYSTEM CONTROL (VS)
JACK MONO
WIND
MIC MONO
PB 1.7M DET
JOG
AU IN/OUT
LINE MIX
SEL 2
MONO REC
MX ON/OFF
SEL 1
A MUTE
SP/LP
VA PB MODE
CAME/LINE
SYSTEM CONTROL (VS)
RF SWP
SERVO (VS)
09

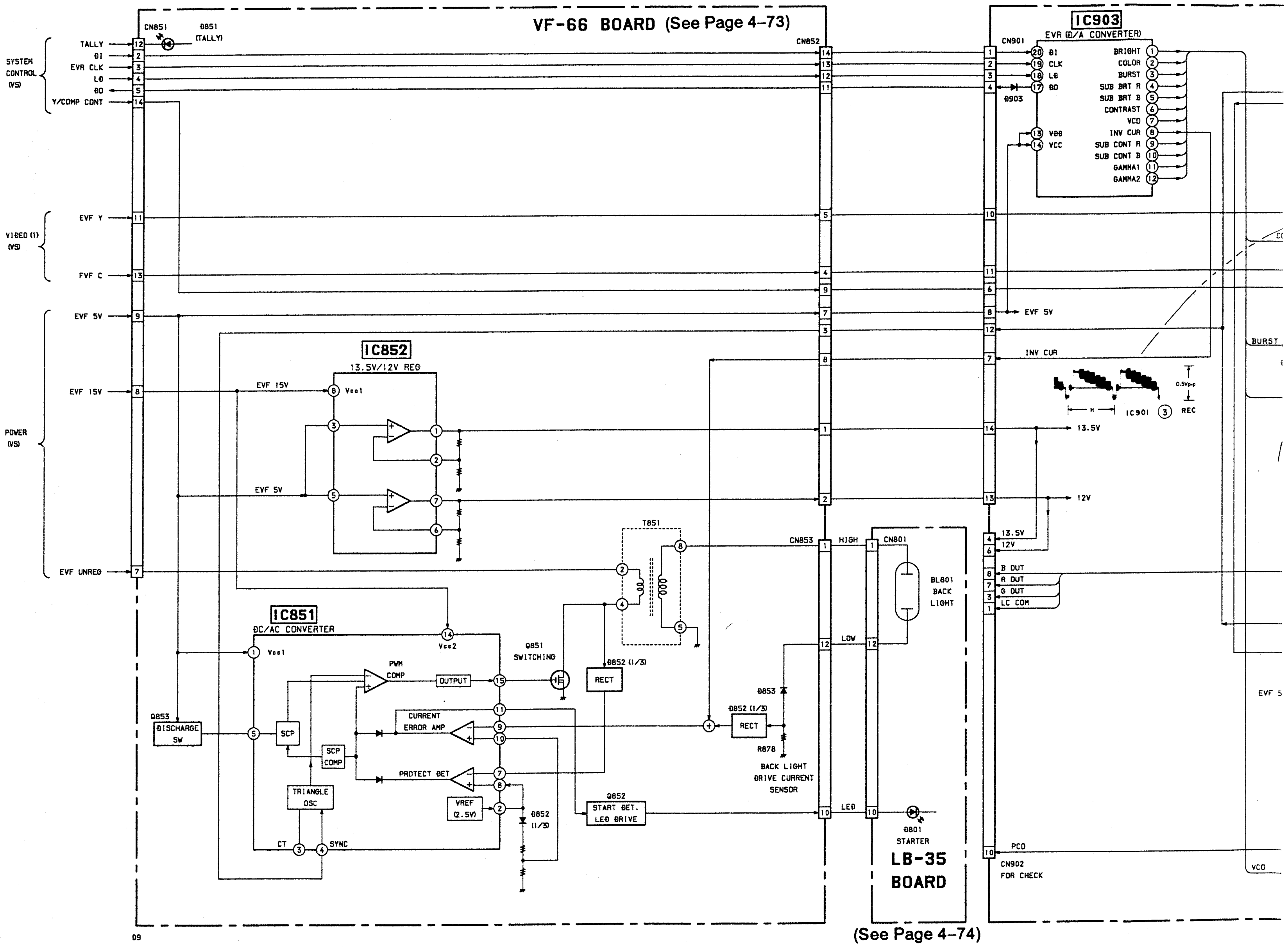
3-8. AUDIO (MONO) BLOCK DIAGRAM (TR530E/TR550E)

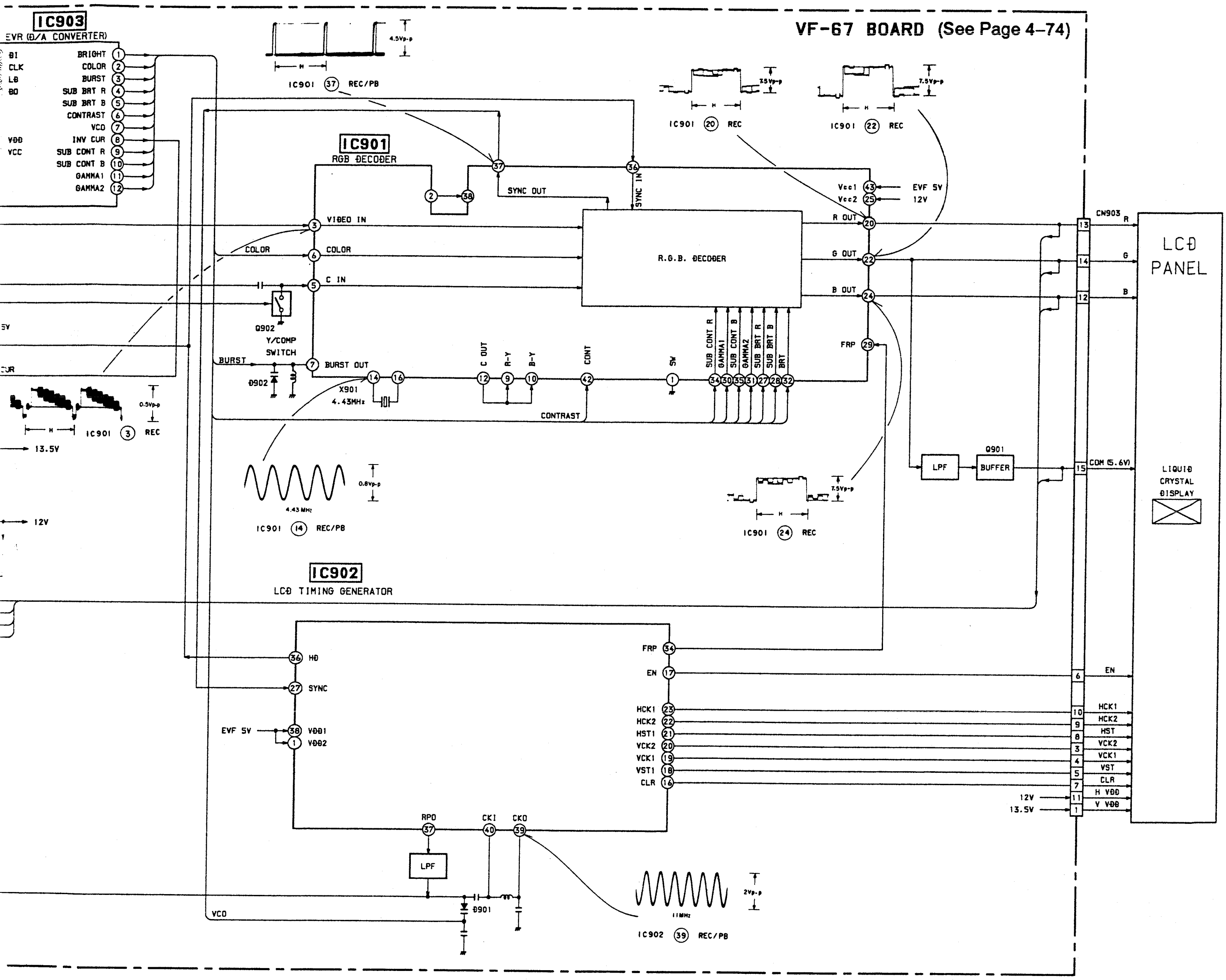

AU-169 BOARD (See Page 4-53)
IC401
AFM PROCESS
Q401
TIME CONSTANT SWITCH
JOG
RF SWP
VA PB MODE
SP/LP
A MUTE
AU CAM/LINE
AUDIO FADER
FADE
AGC
CAM
LINE
RF AGC
FILTER
MOD, DEMOD
NR
PB
MX
MUTE
PB
REC
Q404, C416, R412, L401
LPF
LPF ON
IR REF
V REF
AUDIO 4.9V (CN401 ⑫)
Q403
Q405, 406
LEVEL SHIFT
AU IN/OUT
VIDEO (2) (VS)
PB RF
REC AFM RF
CN401
VIDEO (1) (VS)
AUDIO FADER
1.5M DEV
AU FSC
IR ADJ
09
CN402
AU 4.9V (CN401 ⑫)
MIC IN
SS 4.9V (CN401 ②)
SIRCS VCC
SIRCS SIG
TALLY
HP OUT
AUDIO I/O
TALLY
SIRCS SIG
JOG
AU IN/OUT
CAM/LINE
VA PB MODE
SP/LP
A MUTE
RF SWP
SYSTEM CONTROL (VS)
SERVO (VS)
MA-199 BOARD (See Page 4-57)
IC003
MIC AMP
CN001
EXT VCC
MIC VCC
VCC
MIC AMP
MIC VCC
MIC SIG
J001
EXT/MIC
IC002
VCC
R OUT
SIRCS
D004
TALLY
Q002
FILTER
CN003
MIC
M003
DD BOARD (See Page 4-79)
CN202
CN504
CN901
J903
EARPHONE
CN201
J201
AUDIO
(See Page 4-34, 4-37)
VS BOARD
TERMINAL BOARD

3-9. W/B EVF BLOCK DIAGRAM (TR530E/TR550E/TR650E/TR750E)

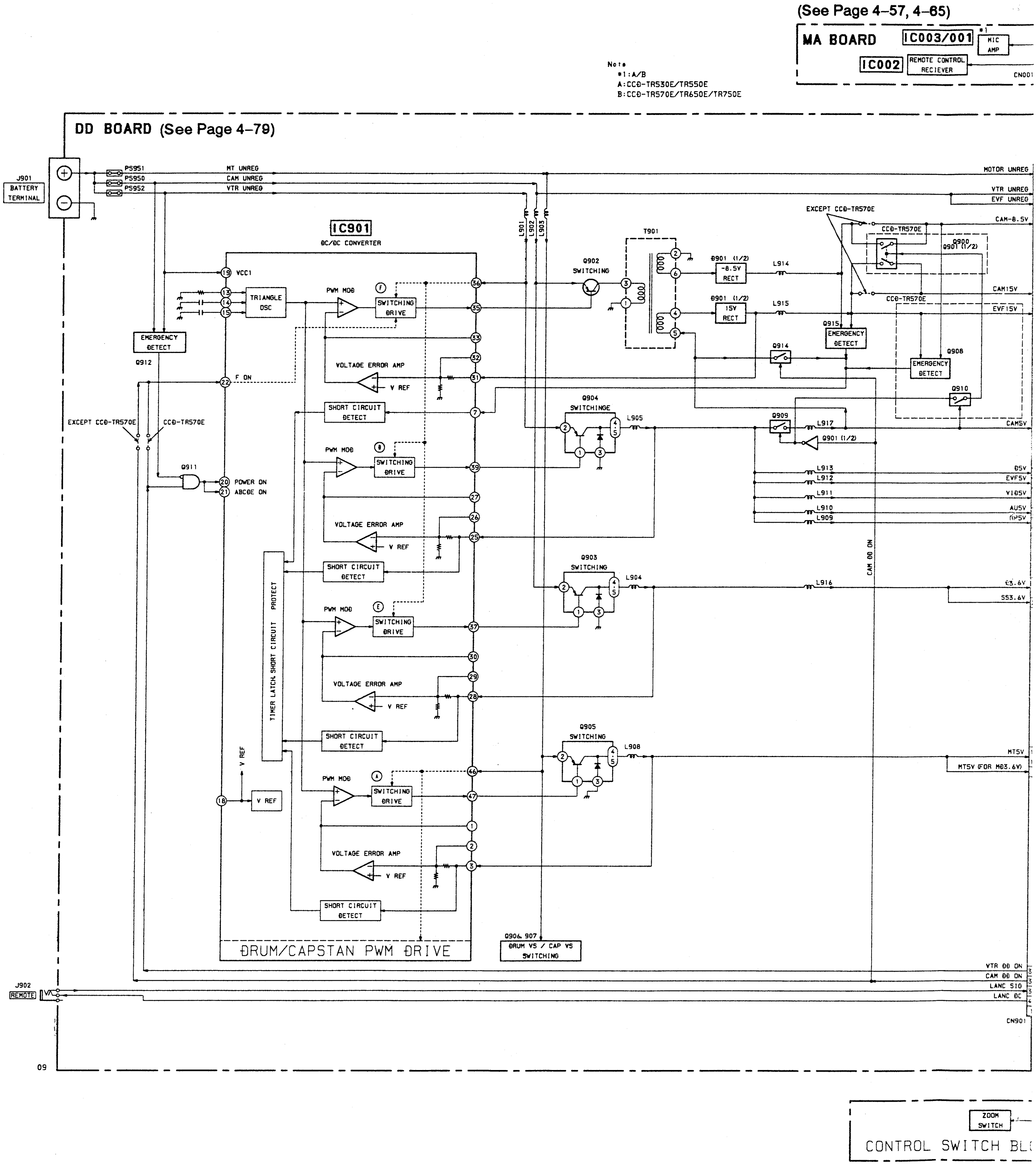

VF-65 BOARD (See Page 4-68)
SYSCON (VS) TALLY
VIDEO (1) (VS) EVF OUT
CN901
EVF 5V
D901 (TALLY)
IC901 ⑪ REC
IC901 ⑬ REC
IC901
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
VCC VCC
EVF 5V
Q903 VIDEO AMP
Q904 VIDEO DRIVE
Q902 H OUT
C909 H SIZE
T901 FBT
D903 DUMPER
RV904 BRIGHT
RV903 V SIZE
W901
G1
G2
H
HV
V901 PICTURE TUBE
CN902
DEFLECTION YOKE
DH2
DH1
DV2
DV1
EVF 5V
L903 HLC
09

3-10. COLOR EVF BLOCK DIAGRAM (TR570E)


VF-66 BOARD (See Page 4-73)
SYSTEM CONTROL (VS)
TALLY
DI
EVR CLK
LD
DO
Y/COMP CONT
VIDEO (1) (VS)
EVF Y
EVF C
POWER (VS)
EVF 5V
EVF 15V
EVF UNREG
CN851
D851 (TALLY)
CN852
CN853
IC852
13.5V/12V REG
IC851
DC/AC CONVERTER
Vcc1
Vcc2
PWM COMP
OUTPUT
SCP
SCP COMP
CURRENT ERROR AMP
PROTECT DET
TRIANGLE OSC
VREF (2.5V)
CT
SYNC
Q853 DISCHARGE SW
Q851 SWITCHING
Q852 (1/3)
RECT
T851
D853
R878
BACK LIGHT DRIVE CURRENT SENSOR
Q852 START DET. LED DRIVE
HIGH
LOW
LED
CN801
BL801 BACK LIGHT
D801 STARTER
LB-35 BOARD
(See Page 4-74)
IC903
EVR (D/A CONVERTER)
CN901
DI
CLK
LD
DO
D903
VDD
VCC
BRIGHT
COLOR
BURST
SUB BRT R
SUB BRT B
CONTRAST
VCO
INV CUR
SUB CONT R
SUB CONT B
GAMMA1
GAMMA2
EVF 5V
INV CUR
IC901 ③ REC
13.5V
12V
B OUT
R OUT
G OUT
LC COM
PCO
CN902 FOR CHECK
BURST
VCO
EVF 5
09

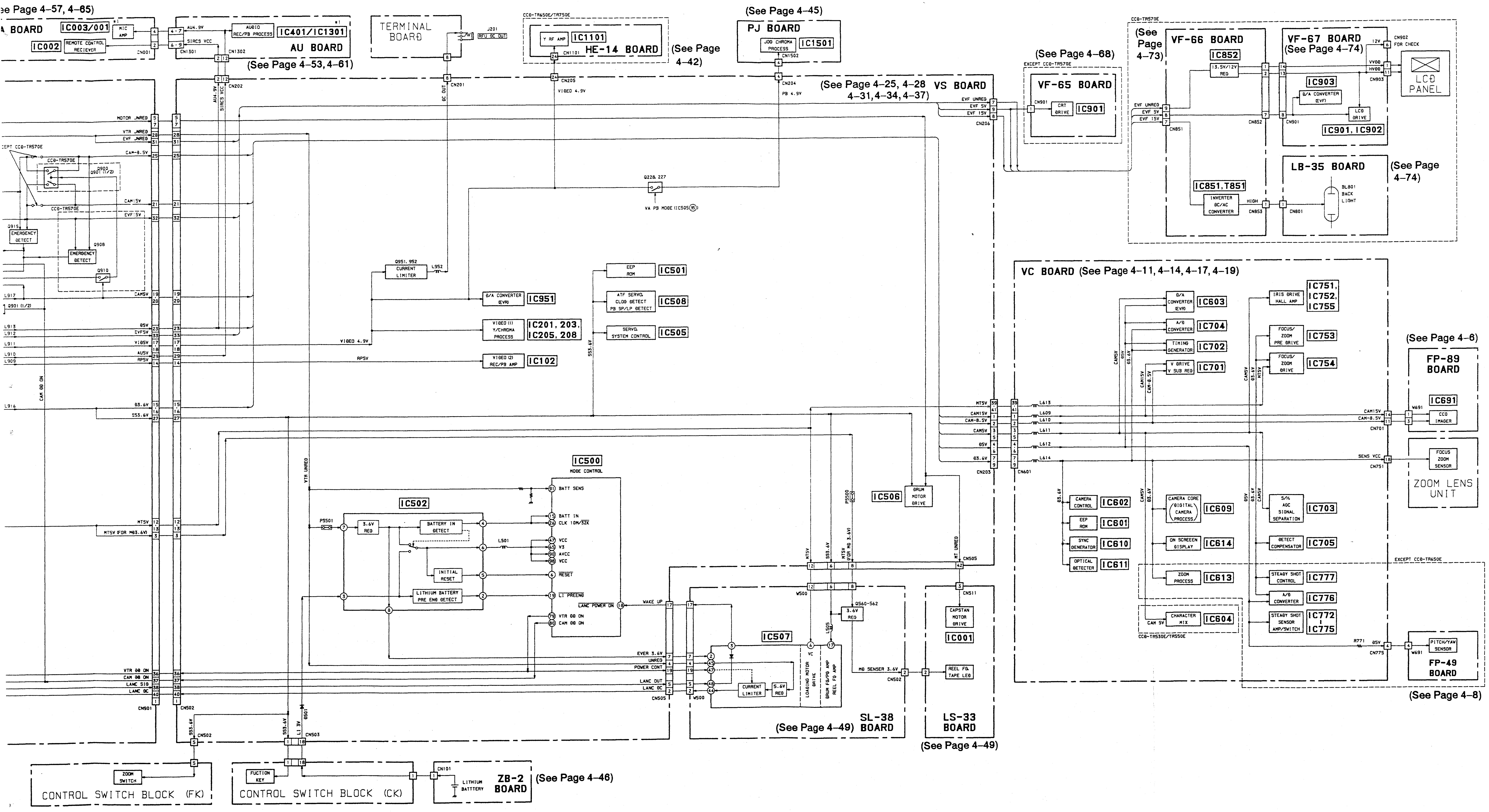

VF-67 BOARD (See Page 4-74)
IC903
EVR (D/A CONVERTER)
BRIGHT 1
COLOR 2
BURST 3
SUB BRT R 4
SUB BRT B 5
CONTRAST 6
VCO 7
INV CUR 8
SUB CONT R 9
SUB CONT B 10
GAMMA1 11
GAMMA2 12
DI
CLK
LD
DO
VDD
VCC
IC901
RGB DECODER
VIDEO IN 3
COLOR 6
C IN 5
BURST OUT 7
SYNC OUT
SYNC IN 36
R.G.B. DECODER
Vcc1 43
Vcc2 25
EVF 5V
12V
R OUT 20
G OUT 22
B OUT 24
FRP 29
C OUT 12
R-Y 9
B-Y 10
CONT 42
SW 1
SUB CONT R
GAMMA1
SUB CONT B
GAMMA2
SUB BRT R
SUB BRT B
BRT
34 30 35 31 27 28 32
CONTRAST
X901
4.43MHz
Q902
Y/COMP
SWITCH
D902
BURST
IC901 37 REC/PB
4.5Vp-p
IC901 20 REC
IC901 22 REC
7.5Vp-p
IC901 3 REC
0.5Vp-p
IC901 14 REC/PB
0.8Vp-p
4.43MHz
IC901 24 REC
7.5Vp-p
H
13.5V
12V
CN903
R
G
B
LCD
PANEL
LPF
Q901
BUFFER
COM (5.6V)
LIQUID
CRYSTAL
DISPLAY
IC902
LCD TIMING GENERATOR
HD 36
SYNC 27
EVF 5V
VDD1 38
VDD2 1
FRP 34
EN 17
HCK1 23
HCK2 22
HST1 21
VCK2 20
VCK1 19
VST1 18
CLR 16
RPD 37
CKI 40
CKO 39
LPF
D901
VCO
EN
HCK1
HCK2
HST
VCK2
VCK1
VST
CLR
H VDD
V VDD
12V
13.5V
13 14 12 15 6 10 9 8 2 4 5 7 11 1
IC902 39 REC/PB
2Vp-p
11MHz

3-11. POWER BLOCK DIAGRAM



Note
*1:A/B
A:CCD-TR530E/TR550E
B:CCD-TR570E/TR650E/TR750E

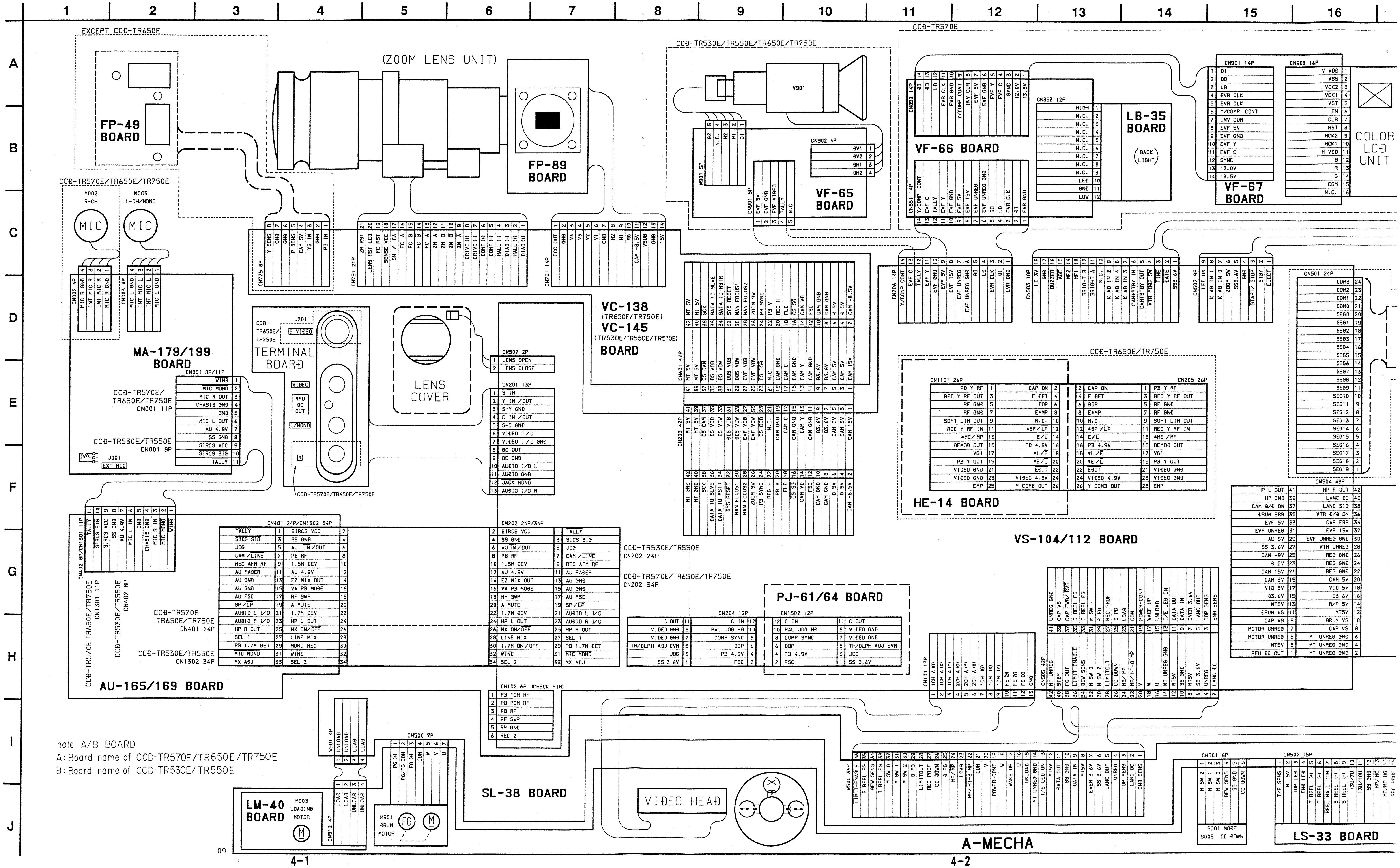
(See Page 4–57, 4–65)
MA BOARD
IC003/001
*1
MIC AMP
IC002
REMOTE CONTROL RECIEVER
CN001
DD BOARD (See Page 4–79)
J901 BATTERY TERMINAL
PS951
PS950
PS952
MT UNREG
CAM UNREG
VTR UNREG
MOTOR UNREG
VTR UNREG
EVF UNREG
L901
L902
L903
IC901
DC/DC CONVERTER
VCC1
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
V REF
SHORT CIRCUIT DETECT
EMERGENCY DETECT
Q912
F ON
EXCEPT CCD-TR570E
CCD-TR570E
Q911
POWER ON
ABCDE ON
TIMER LATCH, SHORT CIRCUIT PROTECT
V REF
DRUM/CAPSTAN PWM DRIVE
Q906, 907
DRUM VS / CAP VS SWITCHING
T901
Q902 SWITCHING
Q901 (1/2) -8.5V RECT
Q901 (1/2) 15V RECT
L914
L915
EXCEPT CCD-TR570E
CCD-TR570E
Q900
Q901 (1/2)
CAM-8.5V
CAM15V
EVF15V
Q915 EMERGENCY DETECT
Q914
Q908 EMERGENCY DETECT
Q910
Q909
L917
Q901 (1/2)
CAM5V
Q904 SWITCHINGE
L905
L913
L912
L911
L910
L909
D5V
EVF5V
VIDSV
AU5V
RP5V
CAM DD ON
Q903 SWITCHING
L904
L916
S3.6V
SS3.6V
Q905 SWITCHING
L908
MT5V
MT5V (FOR MD3.6V)
VTR DD ON
CAM DD ON
LANC SIG
LANC DC
CN901
J902 REMOTE
09
ZOOM SWITCH
CONTROL SWITCH BL


(See Page 4-57, 4-65)
BOARD
IC003/001
IC002
REMOTE CONTROL RECIEVER
MIC AMP
AUDIO REC/PB PROCESS
IC401/IC1301
AU BOARD
(See Page 4-53, 4-61)
TERMINAL BOARD
J201 RFU DC OUT
CCD-TR650E/TR750E
Y RF AMP
IC1101
HE-14 BOARD
(See Page 4-42)
(See Page 4-45)
PJ BOARD
JOG CHROMA PROCESS
IC1501
(See Page 4-25, 4-28 4-31, 4-34, 4-37)
VS BOARD
(See Page 4-68)
EXCEPT CCD-TR570E
VF-65 BOARD
CRT DRIVE
IC901
CCD-TR570E
(See Page 4-73)
VF-66 BOARD
IC852
13.5V/12V REG
VF-67 BOARD
(See Page 4-74)
IC903
D/A CONVERTER (EVF)
LCD DRIVE
IC901, IC902
LCD PANEL
FOR CHECK
IC851, T851
INVERTER DC/AC CONVERTER
LB-35 BOARD
(See Page 4-74)
BACK LIGHT
Q228, 227
VA PB MODE (IC505 ⑮)
EMERGENCY DETECT
Q951, 952 CURRENT LIMITER
EEP ROM
IC501
D/A CONVERTER (EVR)
IC951
ATF SERVO, CLOG DETECT PB SP/LP DETECT
IC508
VIDEO (1) Y/CHROMA PROCESS
IC201, 203, IC205, 208
SERVO, SYSTEM CONTROL
IC505
VIDEO (2) REC/PB AMP
IC102
VC BOARD (See Page 4-11, 4-14, 4-17, 4-19)
D/A CONVERTER (EVR)
IC603
A/D CONVERTER
IC704
TIMING GENERATOR
IC702
V DRIVE V SUB REG
IC701
IRIS DRIVE HALL AMP
IC751, IC752, IC755
FOCUS/ZOOM PRE DRIVE
IC753
FOCUS/ZOOM DRIVE
IC754
(See Page 4-6)
FP-89 BOARD
IC691
CCD IMAGER
FOCUS ZOOM SENSOR
ZOOM LENS UNIT
CAMERA CONTROL
IC602
EEP ROM
IC601
SYNC GENERATOR
IC610
OPTICAL DETECTER
IC611
CAMERA CORE DIGITAL CAMERA PROCESS
IC609
ON SCREEEN DISPLAY
IC614
ZOOM PROCESS
IC613
CHARACTER MIX
IC604
S/H AGC SIGNAL SEPARATION
IC703
DETECT COMPENSATOR
IC705
EXCEPT CCD-TR650E
STEADY SHOT CONTROL
IC777
A/D CONVERTER
IC776
STEADY SHOT SENSOR AMP/SWITCH
IC772 IC775
PITCH/YAW SENSOR
FP-49 BOARD
(See Page 4-8)
IC500
MODE CONTROL
IC502
3.6V REG
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
IC506
DRUM MOTOR DRIVE
IC507
CURRENT LIMITER
5.6V REG
LOADING MOTOR DRIVE
DRUM FG/PG AMP
REEL FG AMP
SL-38 BOARD
(See Page 4-49)
CAPSTAN MOTOR DRIVE
IC001
REEL FG TAPE LED
LS-33 BOARD
(See Page 4-49)
ZOOM SWITCH
CONTROL SWITCH BLOCK (FK)
FUCTION KEY
CONTROL SWITCH BLOCK (CK)
LITHIUM BATTERY
ZB-2 BOARD
(See Page 4-46)
CN901
CN502
CN503
CN505
CN101
CN201
CN202
CN203
CN204
CN205
CN206
CN601
CN701
CN751
CN775

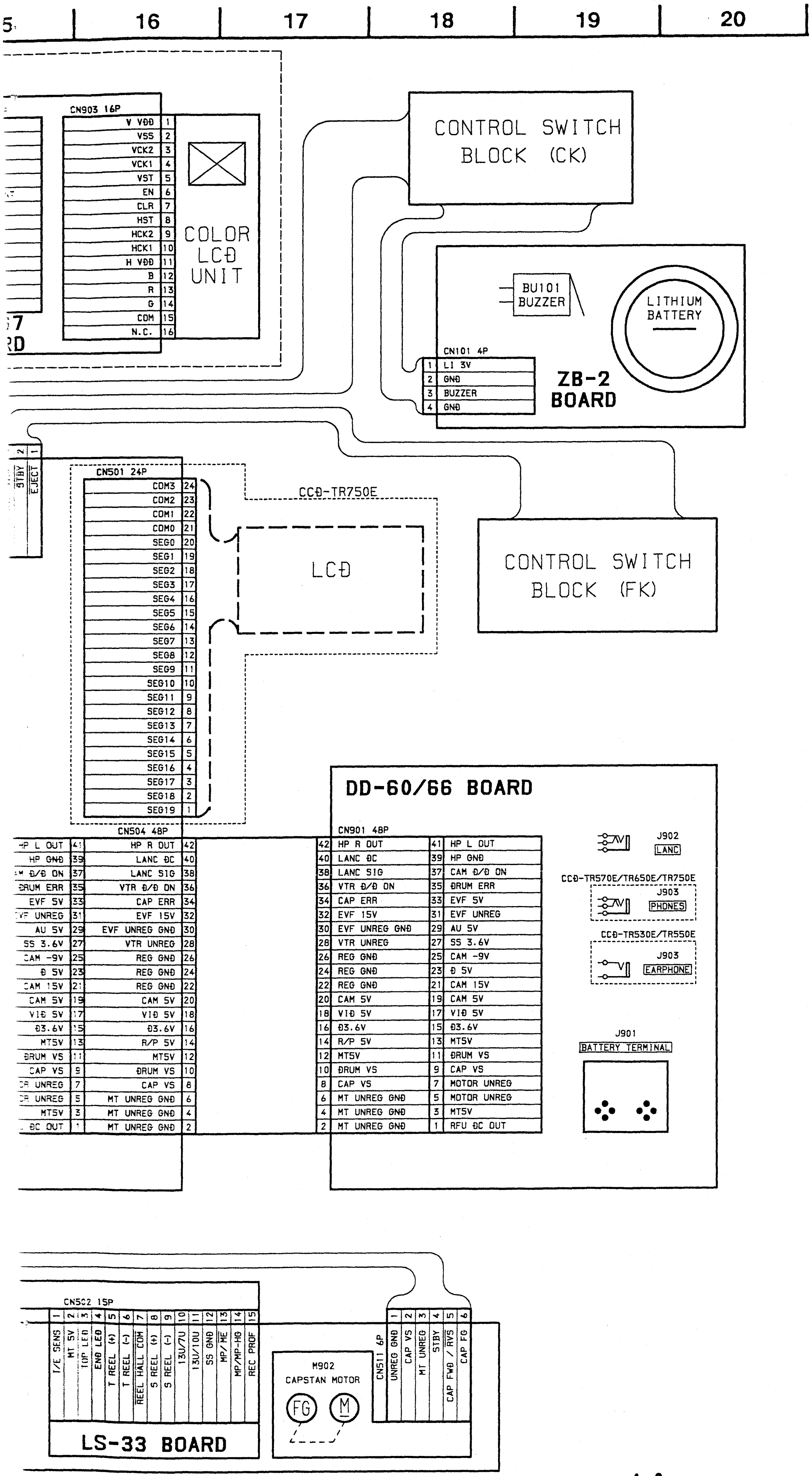
SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



EXCEPT CCD-TR650E
FP-49 BOARD
(ZOOM LENS UNIT)
FP-89 BOARD
CCD-TR530E/TR550E/TR650E/TR750E
V901
VF-65 BOARD
CN902 4P
CN901 5P
W901 5P
CCD-TR570E
VF-66 BOARD
CN852 14P
CN851 14P
CN853 12P
LB-35 BOARD
(BACK LIGHT)
CN901 14P
CN903 16P
VF-67 BOARD
COLOR LCD UNIT
CCD-TR570E/TR650E/TR750E
M002 R-CH
M003 L-CH/MONO
MIC
CN002 4P
CN003 4P
MA-179/199 BOARD
CN001 8P/11P
CCD-TR570E/TR650E/TR750E CN001 11P
CCD-TR530E/TR550E CN001 8P
J001 EXT MIC
CN775 8P
CN751 21P
CN701 14P
VC-138 (TR650E/TR750E)
VC-145 (TR530E/TR550E/TR570E)
BOARD
CCD-TR650E/TR750E
J201 S VIDEO
TERMINAL BOARD
VIDEO
RFU DC OUT
L/MONO
CCD-TR570E/TR650E/TR750E
LENS COVER
CN507 2P
LENS OPEN
LENS CLOSE
CN201 13P
CN401 42P
CN203 42P
CN206 14P
CN503 18P
CN502 9P
CN501 24P
CCD-TR650E/TR750E
CN1101 26P
CN205 26P
HE-14 BOARD
VS-104/112 BOARD
CN504 48P
CN402 8P/CN1301 11P
CN401 24P/CN1302 34P
CN202 24P/34P
CCD-TR530E/TR550E CN202 24P
CCD-TR570E/TR650E/TR750E CN202 34P
CCD-TR570E TR650E/TR750E CN1301 11P
CCD-TR530E/TR550E CN402 8P
CCD-TR570E TR650E/TR750E CN401 24P
CCD-TR530E/TR550E CN1302 34P
AU-165/169 BOARD
CN204 12P
PJ-61/64 BOARD
CN1502 12P
CN101 13P
CN505 42P
CN102 6P (CHECK PIN)
W501 4P
CN512 4P
CN500 7P
LM-40 BOARD
M903 LOADING MOTOR
M901 DRUM MOTOR
FG
SL-38 BOARD
VIDEO HEAD
A-MECHA
W500 36P
CN501 6P
S001 MODE
S005 CC DOWN
CN502 15P
LS-33 BOARD
09
note A/B BOARD
A: Board name of CCD-TR570E/TR650E/TR750E
B: Board name of CCD-TR530E/TR550E


16
17
18
19
20
CN903 16P
V VDD 1
VSS 2
VCK2 3
VCK1 4
VST 5
EN 6
CLR 7
HST 8
HCK2 9
HCK1 10
H VDD 11
B 12
R 13
G 14
COM 15
N.C. 16
COLOR LCD UNIT
CONTROL SWITCH BLOCK (CK)
BU101 BUZZER
LITHIUM BATTERY
CN101 4P
1 LI 3V
2 GND
3 BUZZER
4 GND
ZB-2 BOARD
STBY 2
EJECT 1
CN501 24P
COM3 24
COM2 23
COM1 22
COM0 21
SEG0 20
SEG1 19
SEG2 18
SEG3 17
SEG4 16
SEG5 15
SEG6 14
SEG7 13
SEG8 12
SEG9 11
SEG10 10
SEG11 9
SEG12 8
SEG13 7
SEG14 6
SEG15 5
SEG16 4
SEG17 3
SEG18 2
SEG19 1
CCD-TR750E
LCD
CONTROL SWITCH BLOCK (FK)
DD-60/66 BOARD
CN504 48P
HP L OUT 41 | HP R OUT 42
HP GND 39 | LANC DC 40
CAM D/D ON 37 | LANC SIG 38
DRUM ERR 35 | VTR D/D ON 36
EVF 5V 33 | CAP ERR 34
EVF UNREG 31 | EVF 15V 32
AU 5V 29 | EVF UNREG GND 30
SS 3.6V 27 | VTR UNREG 28
CAM -9V 25 | REG GND 26
D 5V 23 | REG GND 24
CAM 15V 21 | REG GND 22
CAM 5V 19 | CAM 5V 20
VID 5V 17 | VID 5V 18
D3.6V 15 | D3.6V 16
MT5V 13 | R/P 5V 14
DRUM VS 11 | MT5V 12
CAP VS 9 | DRUM VS 10
OR UNREG 7 | CAP VS 8
OR UNREG 5 | MT UNREG GND 6
MT5V 3 | MT UNREG GND 4
DC OUT 1 | MT UNREG GND 2
CN901 48P
42 HP R OUT | 41 HP L OUT
40 LANC DC | 39 HP GND
38 LANC SIG | 37 CAM D/D ON
36 VTR D/D ON | 35 DRUM ERR
34 CAP ERR | 33 EVF 5V
32 EVF 15V | 31 EVF UNREG
30 EVF UNREG GND | 29 AU 5V
28 VTR UNREG | 27 SS 3.6V
26 REG GND | 25 CAM -9V
24 REG GND | 23 D 5V
22 REG GND | 21 CAM 15V
20 CAM 5V | 19 CAM 5V
18 VID 5V | 17 VID 5V
16 D3.6V | 15 D3.6V
14 R/P 5V | 13 MT5V
12 MT5V | 11 DRUM VS
10 DRUM VS | 9 CAP VS
8 CAP VS | 7 MOTOR UNREG
6 MT UNREG GND | 5 MOTOR UNREG
4 MT UNREG GND | 3 MT5V
2 MT UNREG GND | 1 RFU DC OUT
J902
LANC
CCD-TR570E/TR650E/TR750E
J903
PHONES
CCD-TR530E/TR550E
J903
EARPHONE
J901
BATTERY TERMINAL
CN502 15P
1 T/E SENS
2 MT 5V
3 TOP LED
4 END LED
5 T REEL (+)
6 T REEL (-)
7 REEL HALL COM
8 S REEL (+)
9 S REEL (-)
10 13U/7U
11 13U/10U
12 SS GND
13 MP/ME
14 MP/MP-HG
15 REC PROF
LS-33 BOARD
M902
CAPSTAN MOTOR
FG
M
CN511 6P
1 UNREG GND
2 CAP VS
3 MT UNREG
4 STBY
5 CAP FWD / RVS
6 CAP FG

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this , the necessary note is printed in each block.)

• For printed wiring boards.

- ▨ : Pattern from the side which enables seeing.
  (The other layers'patterns are not indicated.)
- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ○: Through hole .

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

• For schematic diagrams.

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.
- ⏛ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ⊔ : adjustment for repeair.
- ━━ : B+ Line.
- - - - : B– Line.
- ⇨ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

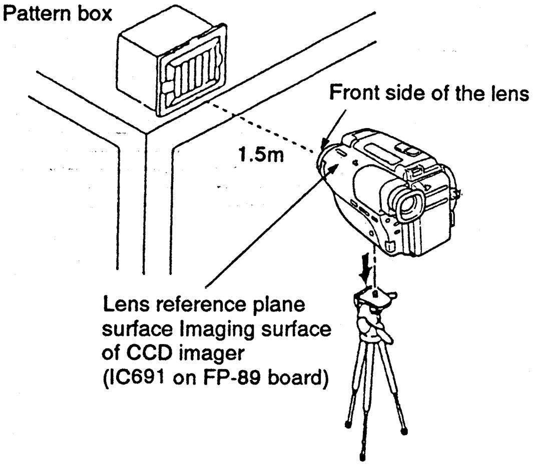
When indicating parts by reference number, please include the board name.

- Australian model is abbreviated as AUS.

• Measuring conditions voltage value and waveform. (CAMERA block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points. Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection


Pattern box
Front side of the lens
1.5m
Lens reference plane surface Imaging surface of CCD imager (IC691 on FP-89 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

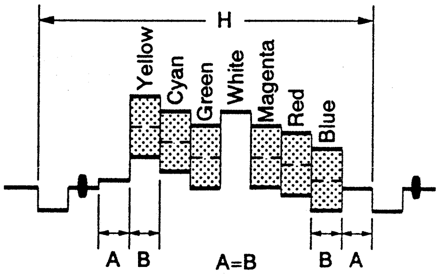


Fig. a (Video output terminal output waveform)

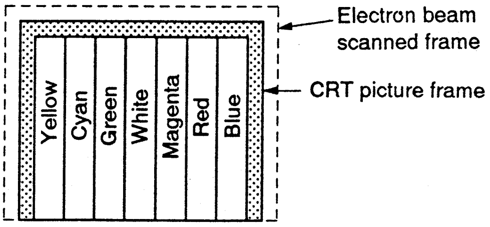


Fig. b (Picture on monitor TV)

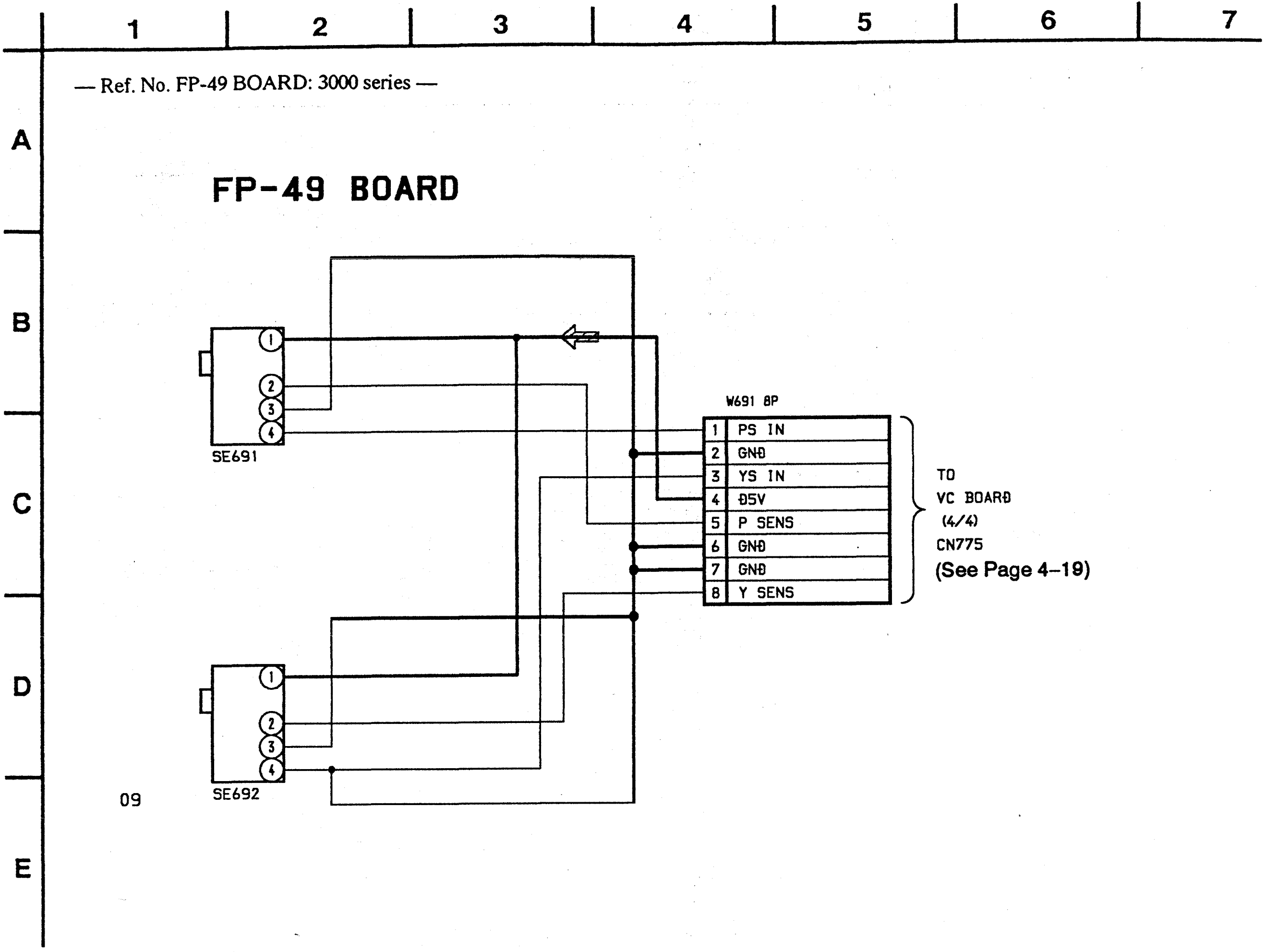
(VIDEO, SERVO/SYSTEM CONTROL, AUDIO, LCD CONTROL)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note: Refer to "3-1-4. How to set the REC mode in the model with out REC switch (Except CCD-TR750E E, Australian model) " in 7-3. VIDEO SECTION ADJUSTMENTS. (See 7–34)

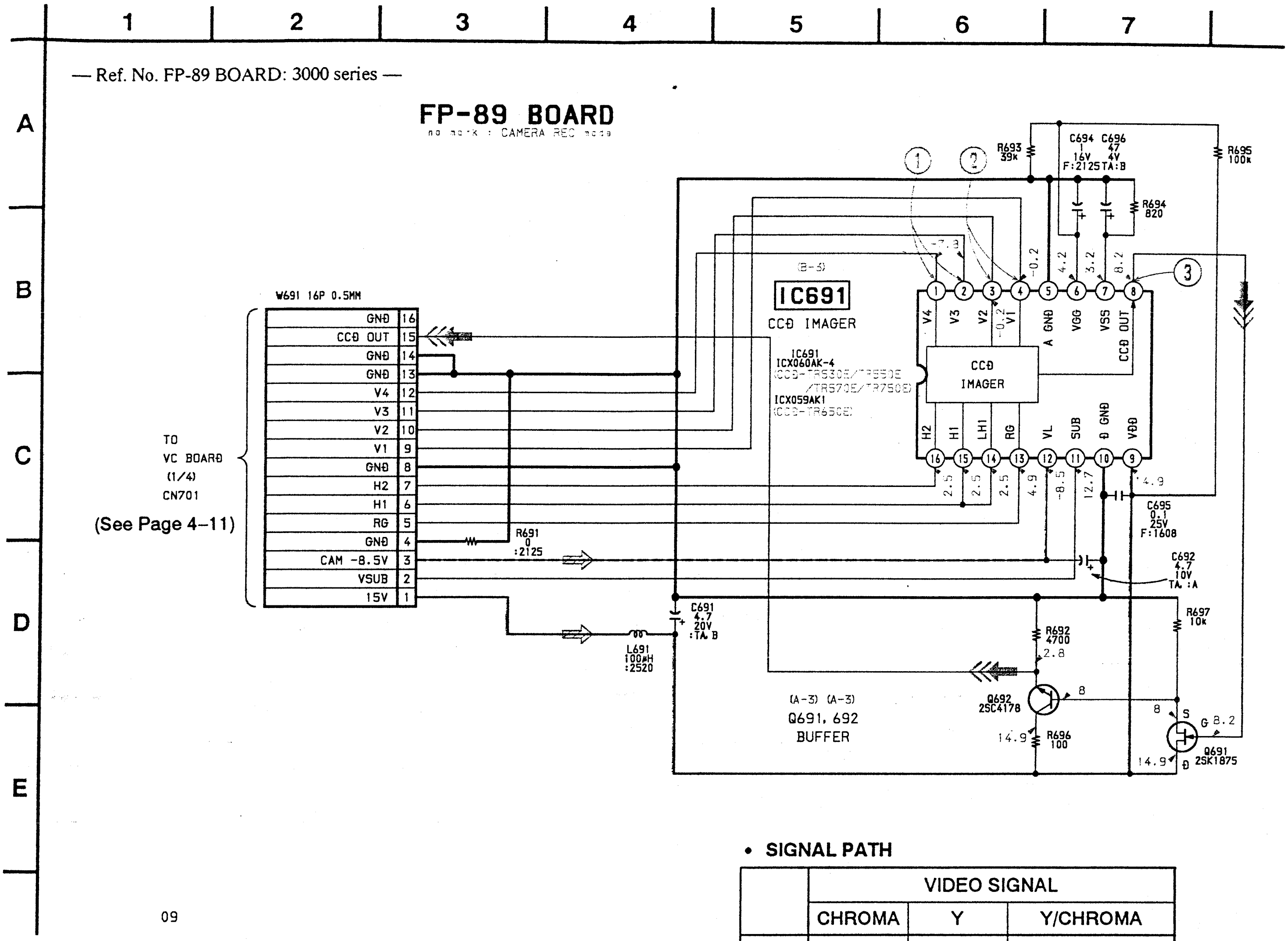
FP-49 (STEADY SHOT SENSOR) SCHEMATIC DIAGRAM (TR530E/TR550E/TR570E/TR750E)

— Ref. No. FP-49 BOARD: 3000 series —


1
2
3
4
5
6
7
A
B
C
D
E
FP-49 BOARD
SE691
SE692
W691 8P
1 PS IN
2 GND
3 YS IN
4 D5V
5 P SENS
6 GND
7 GND
8 Y SENS
TO
VC BOARD
(4/4)
CN775
(See Page 4-19)
09

FP-89 (CCD IMAGER) SCHEMATIC DIAGRAM

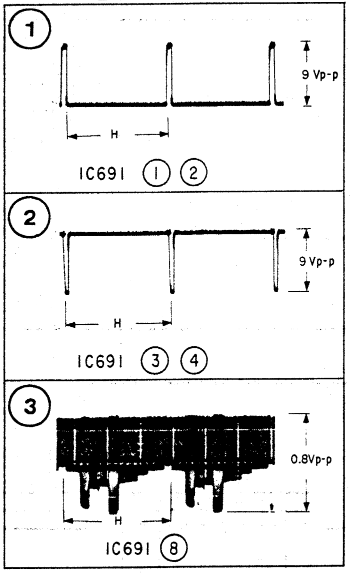
— Ref. No. FP-89 BOARD: 3000 series —


1
2
3
4
5
6
7
A
B
C
D
E
FP-89 BOARD
IC691
CCD IMAGER
IC691
ICX060AK-4
ICX059AK1
CCD IMAGER
W691 16P 0.5MM
GND 16
CCD OUT 15
GND 14
GND 13
V4 12
V3 11
V2 10
V1 9
GND 8
H2 7
H1 6
RG 5
GND 4
CAM -8.5V 3
VSUB 2
15V 1
TO
VC BOARD
(1/4)
CN701
(See Page 4-11)
R691
0
:2125
L691
100μH
:2520
C691
4.7
20V
:TA B
R693
39k
C694 C696
1 47
16V 4V
F:2125TA:B
R695
100k
R694
820
V4
V3
V2
V1
A GND
VGG
VSS
CCD OUT
H2
H1
LH1
RG
VL
SUB
Φ GND
VDD
-7.3
-0.2
4.2
3.2
8.2
2.5
2.5
2.5
4.9
-8.5
12.7
14.9
C695
0.1
25V
F:1608
C692
4.7
10V
TA :A
R697
10k
R692
4700
2.8
8
Q692
2SC4178
(A-3) (A-3)
Q691, 692
BUFFER
14.9
R696
100
8
S
G 8.2
14.9
D
Q691
2SK1875
09

- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			⇛
PB			

FP-89 BOARD

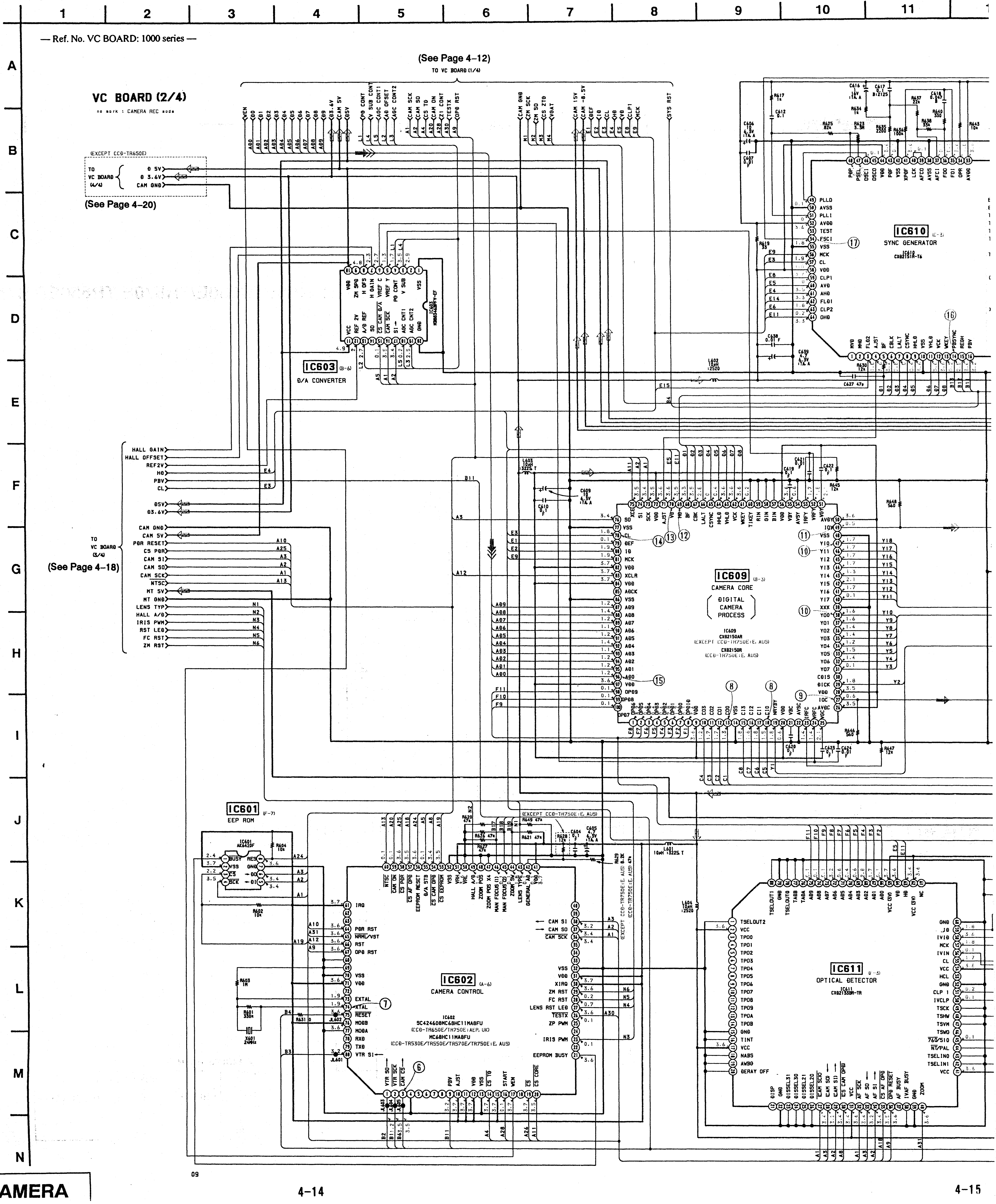


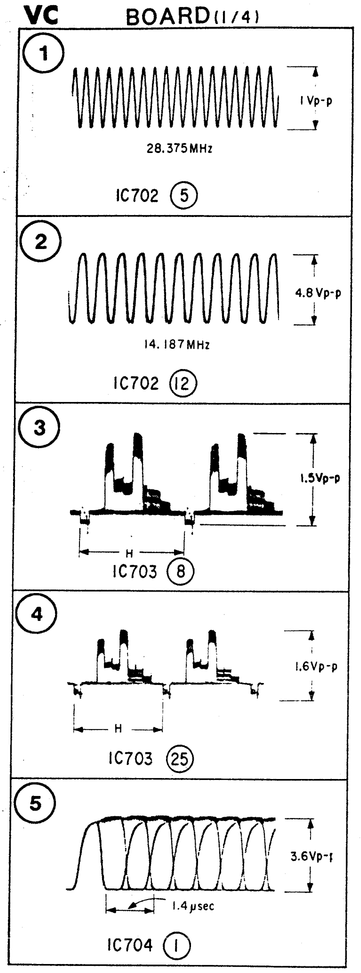
Note on the CCD Imager replacement

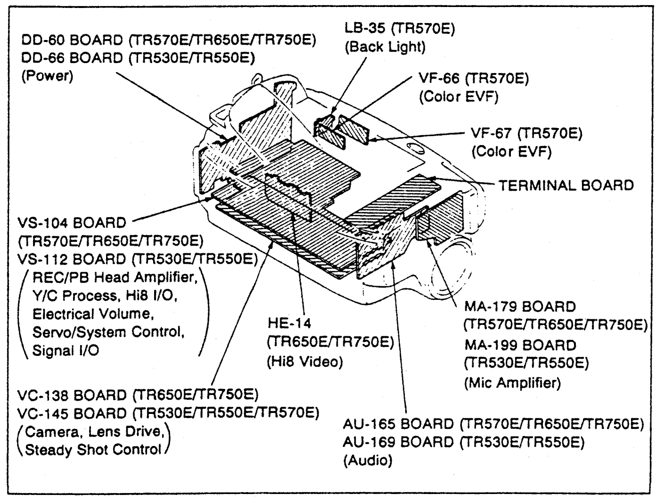
- Some of this units require the correction data by the CCD imager (IC691 on FP-89 board), some do not.
  The correction data is input in F page and addresses 1D to 2C of the camera micro processor (IC602 on VC board), and also written on the CCD data label put on the shield case (upper) of the DD board.
  The correction data is not required for the CCD imager supplied for repair. Therefore, when replacing the CCD imager to which the CCD data label is put, remove the CCD data label and input 00 to F page and addresses 1D to 2C of the camera micro processor. Refer to the camera adjustment for input method.
- The CCD imager is not mounted for the already mounted FP-89 board supplied as the repair parts.
  When replacing the FP-89 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

VC (CAMERA) SCHEMATIC DIAGRAM

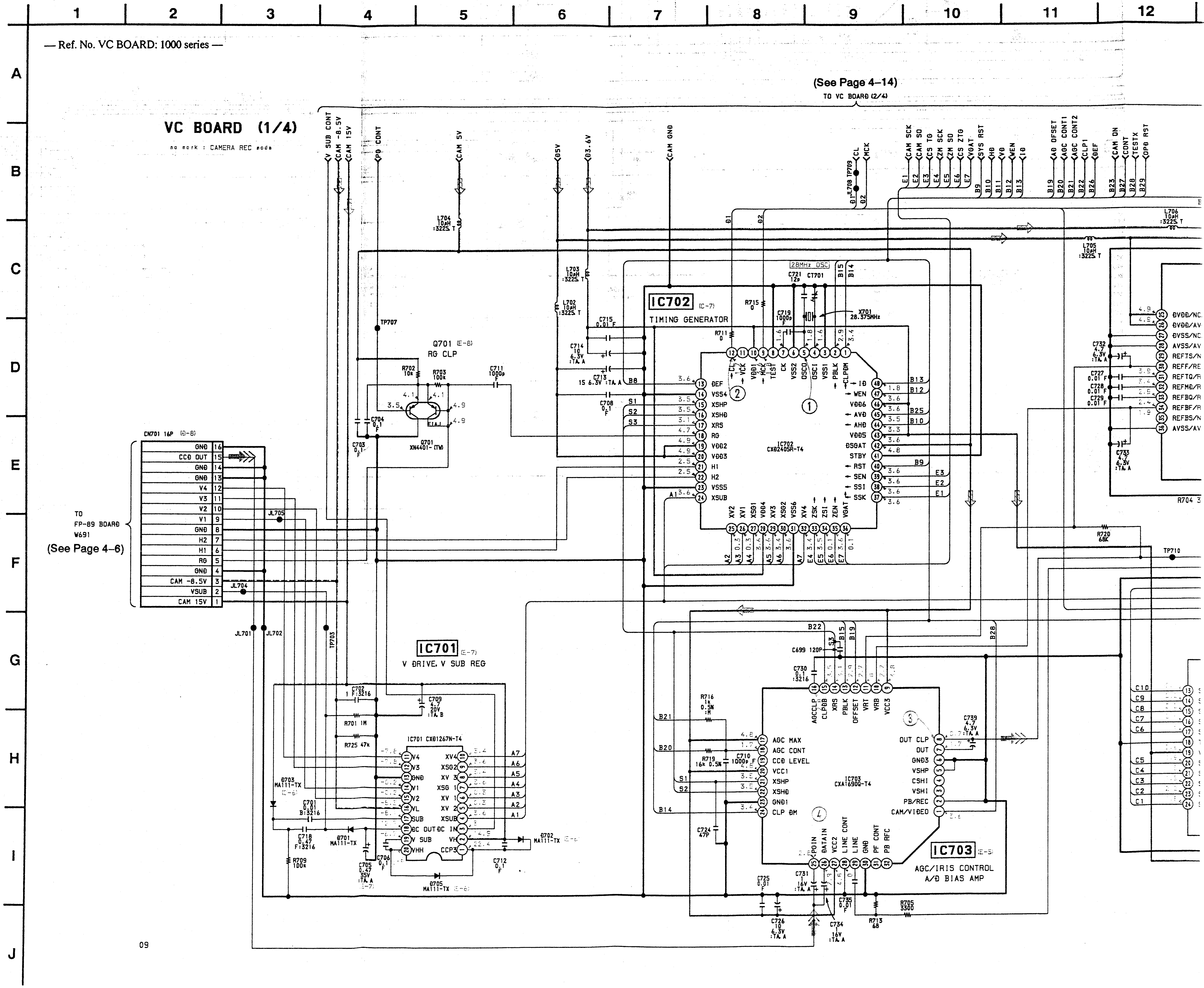
• Refer to page 4–9 for Printed Wiring Board.

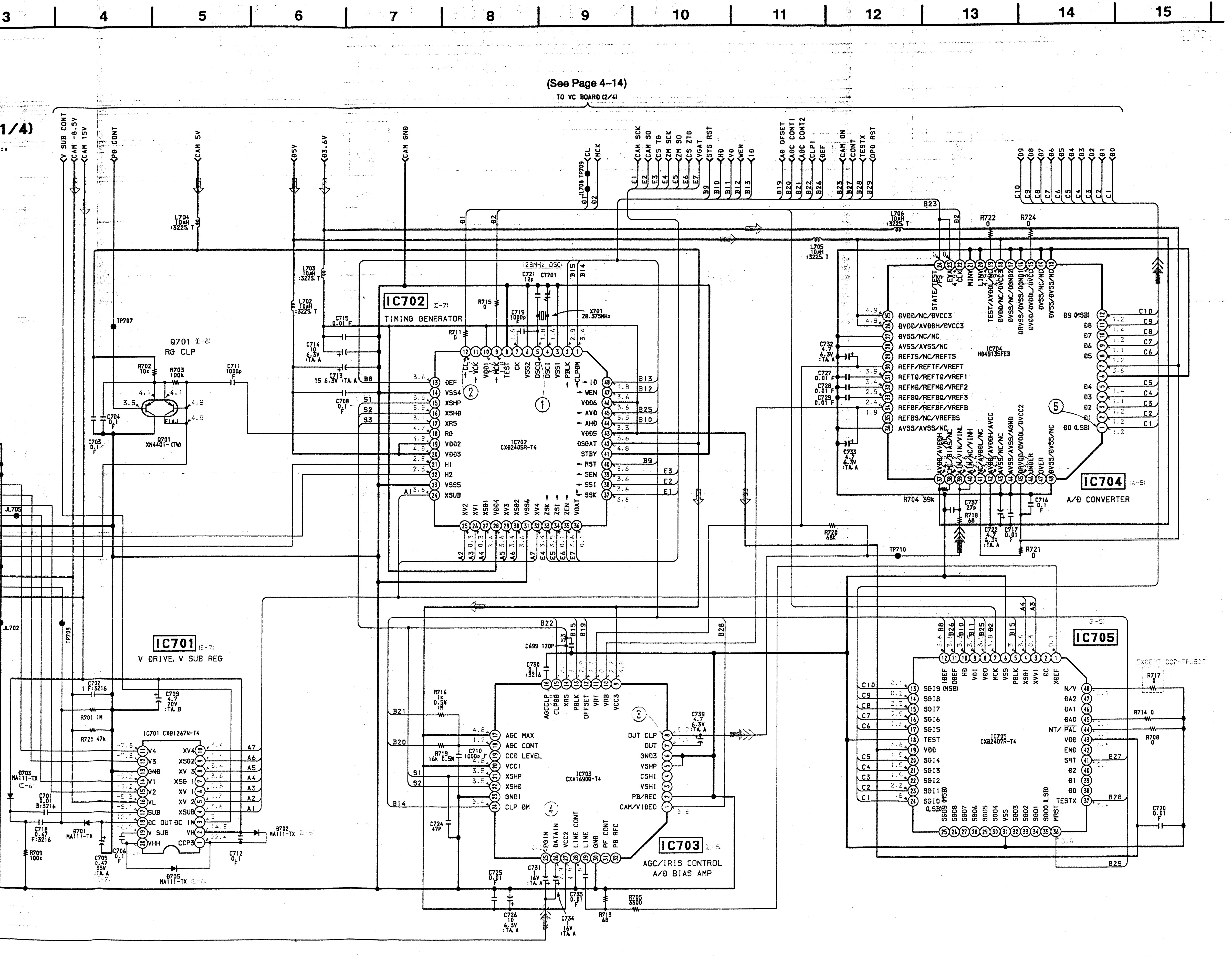

— Ref. No. VC BOARD: 1000 series —
VC BOARD (2/4)
no mark : CAMERA REC mode
(EXCEPT CCD-TR650E)
TO VC BOARD (4/4)
(See Page 4–20)
(See Page 4–12)
TO VC BOARD (1/4)
TO VC BOARD (3/4)
(See Page 4–18)
IC603 (B-6)
D/A CONVERTER
IC610 (C-3)
SYNC GENERATOR
IC610 CXD2151R-T6
IC609 (B-3)
CAMERA CORE
DIGITAL CAMERA PROCESS
IC609 CXD2150AR (EXCEPT CCD-TR750E:E, AUS)
CXD2150R (CCD-TR750E:E, AUS)
IC601 (F-7)
EEP ROM
IC601 AK6420F
IC602 (A-6)
CAMERA CONTROL
IC602 SC424608MC68HC11MA8FU (CCD-TR650E/TR750E:AEP, UK)
MC68HC11MA8FU (CCD-TR530E/TR550E/TR570E/TR750E:E, AUS)
IC611 (D-5)
OPTICAL DETECTOR
IC611 CXD2133BR-TR
(EXCEPT CCD-TR750E:E, AUS)
HALL GAIN
HALL OFFSET
REF2V
HD
PBV
CL
D5V
D3.6V
CAM GND
CAM 5V
PDR RESET
CS PDR
CAM SI
CAM SO
CAM SCK
NTSC
MT 5V
MT GND
LENS TYP
HALL A/D
IRIS PWM
RST LED
FC RST
ZM RST
VEN
PD CONT
V SUB CONT
AGC CONT1
AD OFSET
AGC CONT2
CS TG
ZI CONT
CAM ON
TESTX
OPD RST
CAM GND
ZM SCK
ZM SO
CS ZTG
VGAT
CAM 15V
CAM -8.5V
SYS RST
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I J K L M N




DD-60 BOARD (TR570E/TR650E/TR750E)
DD-66 BOARD (TR530E/TR550E)
(Power)
LB-35 (TR570E)
(Back Light)
VF-66 (TR570E)
(Color EVF)
VF-67 (TR570E)
(Color EVF)
TERMINAL BOARD
VS-104 BOARD
(TR570E/TR650E/TR750E)
VS-112 BOARD (TR530E/TR550E)
(REC/PB Head Amplifier, Y/C Process, Hi8 I/O, Electrical Volume, Servo/System Control, Signal I/O)
HE-14
(TR650E/TR750E)
(Hi8 Video)
MA-179 BOARD
(TR570E/TR650E/TR750E)
MA-199 BOARD
(TR530E/TR550E)
(Mic Amplifier)
VC-138 BOARD (TR650E/TR750E)
VC-145 BOARD (TR530E/TR550E/TR570E)
(Camera, Lens Drive, Steady Shot Control)
AU-165 BOARD (TR570E/TR650E/TR750E)
AU-169 BOARD (TR530E/TR550E)
(Audio)

VC (CAMERA) SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
— Ref. No. VC BOARD: 1000 series —
VC BOARD (1/4)
no mark : CAMERA REC mode
(See Page 4-14)
TO VC BOARD (2/4)
CN701 16P
TO FP-89 BOARD W691
(See Page 4-6)
Q701 RG CLP
XN4401-(TW)
IC702 TIMING GENERATOR
CXD2405R-T4
28MHz OSC
X701 28.375MHz
IC701 V DRIVE, V SUB REG
IC701 CXD1267N-T4
IC703 AGC/IRIS CONTROL A/D BIAS AMP
CXA1690Q-T4
09


3
4
5
6
7
8
9
10
11
12
13
14
15
(See Page 4–14)
TO VC BOARD (2/4)
1/4)
V SUB CONT
CAM -8.5V
CAM 15V
PB CONT
CAM 5V
D5V
D3.6V
CAM GND
CL
MCK
CAM SCK
CAM SO
CS TG
ZH SCK
ZH SO
CS ZTG
VGAT
SYS RST
HD
VD
WEN
ID
AD OFSET
AGC CONT
AGC CONT2
CLP1
DEF
CAM ON
CCONT
TESTX
DPO RST
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
IC702
TIMING GENERATOR
IC702 CXD2405R-T4
28MHz OSC
X701 28.375MHz
Q701 RG CLP
Q701 XN4401-(TW)
TP707
TP709
TP710
TP703
IC701
V DRIVE, V SUB REG
IC701 CXD1267N-T4
D703 MA111-TX
D701 MA111-TX
D702 MA111-TX
D705 MA111-TX
IC703
AGC/IRIS CONTROL
A/D BIAS AMP
IC703 CXA1690Q-T4
IC704
A/D CONVERTER
IC704 HD49135FEB
IC705
IC705 CXD2407R-T4
EXCEPT CCD-TR530E
R717
L704 10µH
L703 10µH
L702 10µH
L705 10µH
L706 10µH
R722 0
R724 0
R704 39k
R720 68K
R721 0
R714 0
R708 0
R716 1k
R719 16k
R713 68
R705 3300
R701 1M
R725 47k
R702 10k
R703 100k
R709 100k
C699 120P

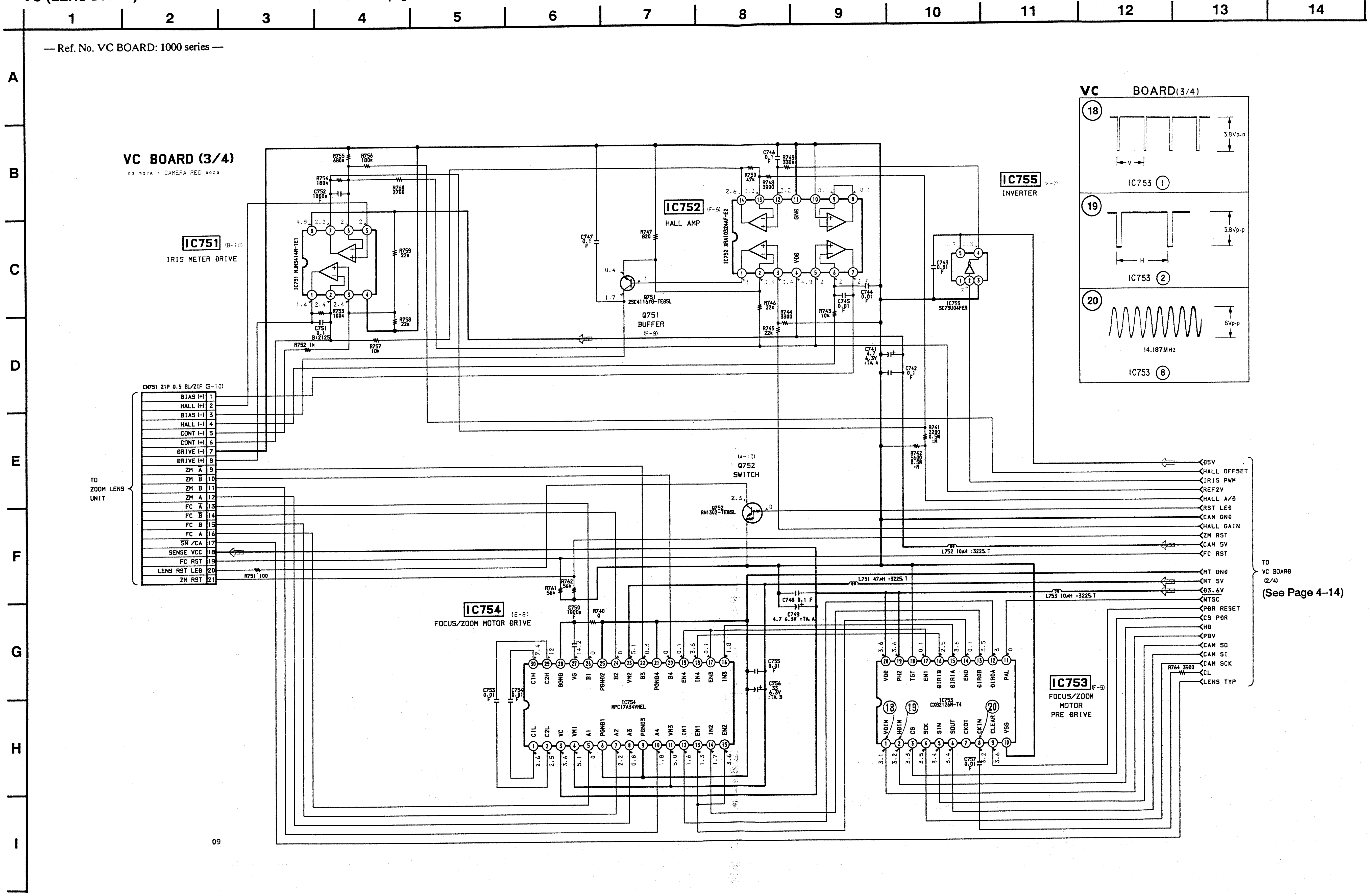
- SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡
PB			

VC (LENS DRIVE) SCHEMATIC DIAGRAM

- Refer to page 4-9 for Printed Wiring Board.

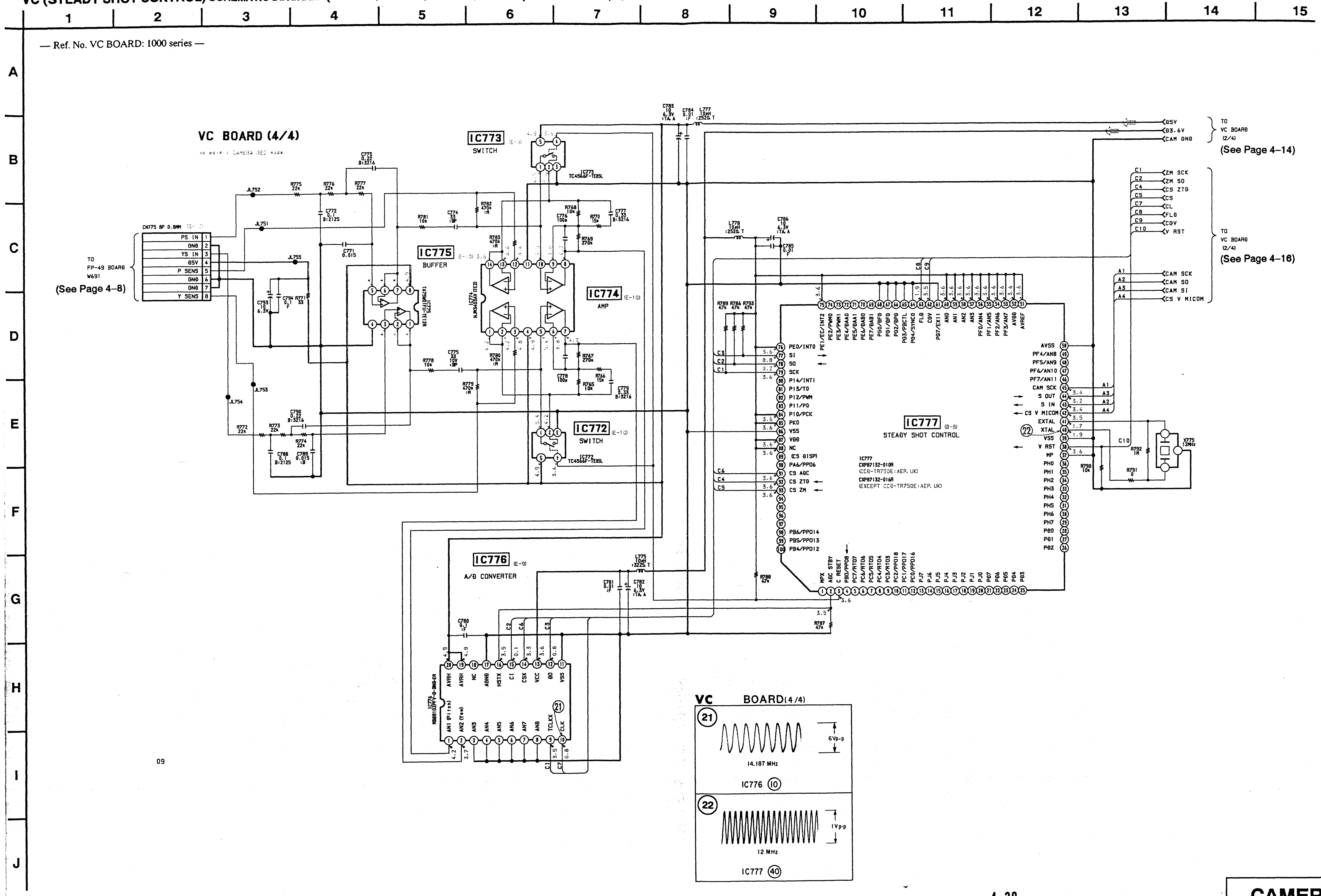
— Ref. No. VC BOARD: 1000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
VC BOARD (3/4)
IC751 (B-10)
IRIS METER DRIVE
IC751 NJM3414M-TE1
R755 680k
R756 180k
R754 180k
C752 1000p F
R760 2700
R759 22k
R758 22k
R753 100k
C751 0.1 B:2125
R752 1k
R757 10k
C747 0.1 F
R747 820
Q751 2SC4116YG-TE85L
Q751
BUFFER
(F-8)
IC752 (F-8)
HALL AMP
IC752 XRA10324AF-E2
GND
VDD
C746 0.1 F
R749 330k
R750 47k
R748 3900
R746 22k
R744 3300
R745 22k
R743 10k
C745 0.01 F
C744 0.01 F
C741 4.7 6.3V :TA A
C742 0.1 F
IC755 (F-7)
INVERTER
C743 0.01 F
IC755 SC7SU04FER
R741 2200 0.5% :M
R742 5600 0.5% :M
(A-10)
Q752
SWITCH
Q752 RN1302-TE85L
L751 47μH :3225 T
L752 10μH :3225 T
L753 10μH :3225 T
C748 0.1 F
C749 4.7 6.3V :TA A
CN751 21P 0.5 EL/ZIF (B-10)
BIAS (+) 1
HALL (+) 2
BIAS (-) 3
HALL (-) 4
CONT (-) 5
CONT (+) 6
DRIVE (-) 7
DRIVE (+) 8
ZM A̅ 9
ZM B̅ 10
ZM B 11
ZM A 12
FC A̅ 13
FC B̅ 14
FC B 15
FC A 16
S̅N̅ /CA 17
SENSE VCC 18
FC RST 19
LENS RST LED 20
ZM RST 21
TO
ZOOM LENS
UNIT
R751 100
IC754 (E-8)
FOCUS/ZOOM MOTOR DRIVE
IC754 MPC17A34VMEL
R761 56k
R762 56k
C750 1000p F
R740 0
C753 0.01 F
C754 0.01 F
C755 0.01 F
C756 33 6.3V :TA B
C1H
C2H
DGND
VG
B1
PGND2
B2
VM2
B3
PGND4
B4
EN4
IN4
EN3
IN3
C1L
C2L
VC
VM1
A1
PGND1
A2
A3
PGND3
A4
VM3
IN1
EN1
IN2
EN2
IC753 (F-9)
FOCUS/ZOOM
MOTOR
PRE DRIVE
IC753 CX82126N-T4
VDD
PH2
TST
EN1
DIR1B
DIR1A
EN0
DIR0B
DIR0A
PAL
VDIN
HDIN
CS
SCK
SIN
SOUT
CKOT
CKIN
CLEAR
VSS
C757 0.01 F
R764 3900
D5V
HALL OFFSET
IRIS PWM
REF2V
HALL A/D
RST LED
CAM GND
HALL GAIN
ZM RST
CAM 5V
FC RST
MT GND
MT 5V
D3.6V
NTSC
PDR RESET
CS PDR
HD
PBV
CAM SO
CAM SI
CAM SCK
CL
LENS TYP
TO
VC BOARD
(2/4)
(See Page 4-14)
VC BOARD(3/4)
18
3.8Vp-p
V
IC753 1
19
3.8Vp-p
H
IC753 2
20
6Vp-p
14.187MHz
IC753 8
09

VC (STEADY SHOT CONTROL) SCHEMATIC DIAGRAM (TR530E/TR550E/TR570E/TR750E)

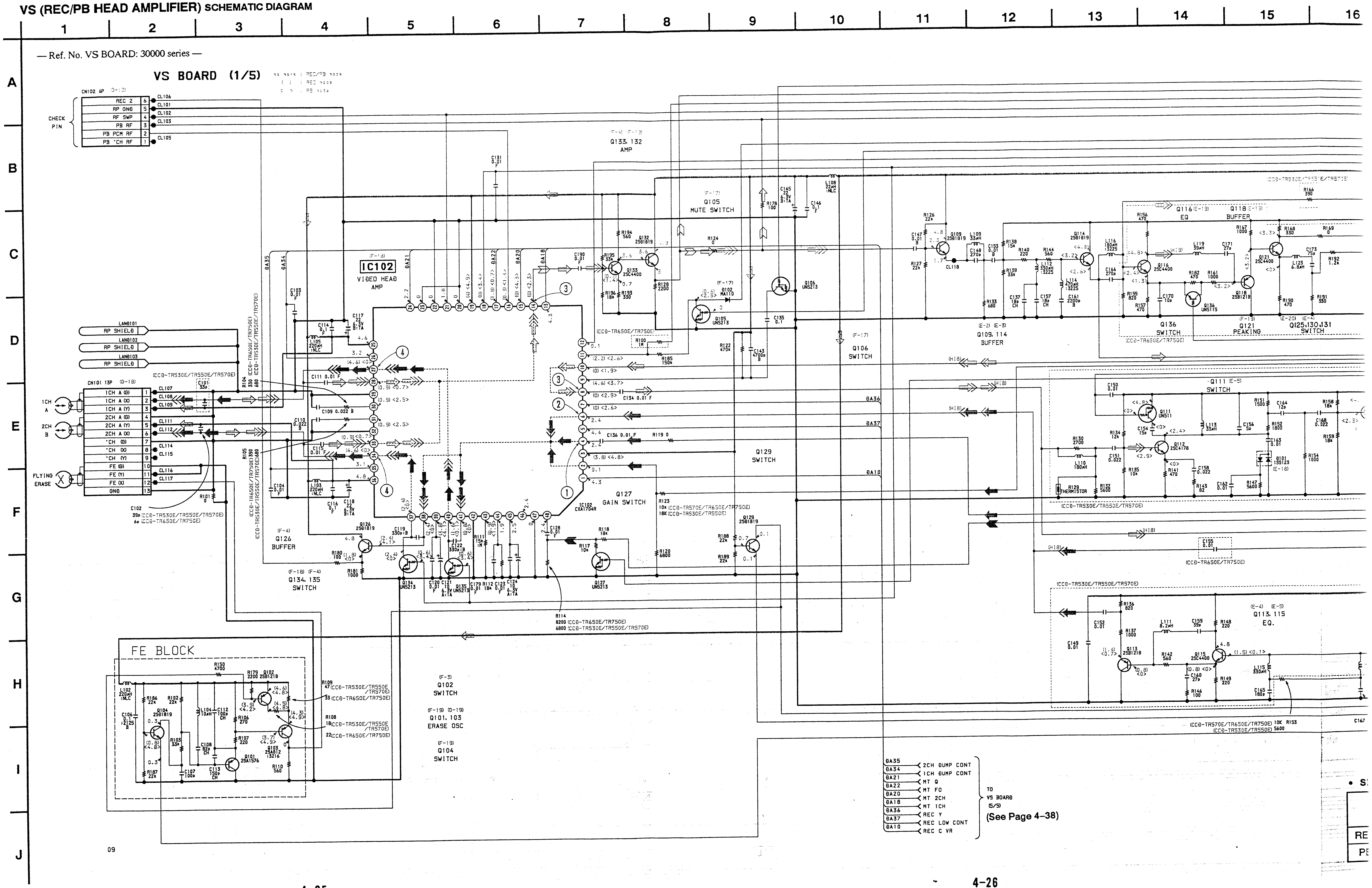
- Refer to page 4–9 for Printed Wiring Board.

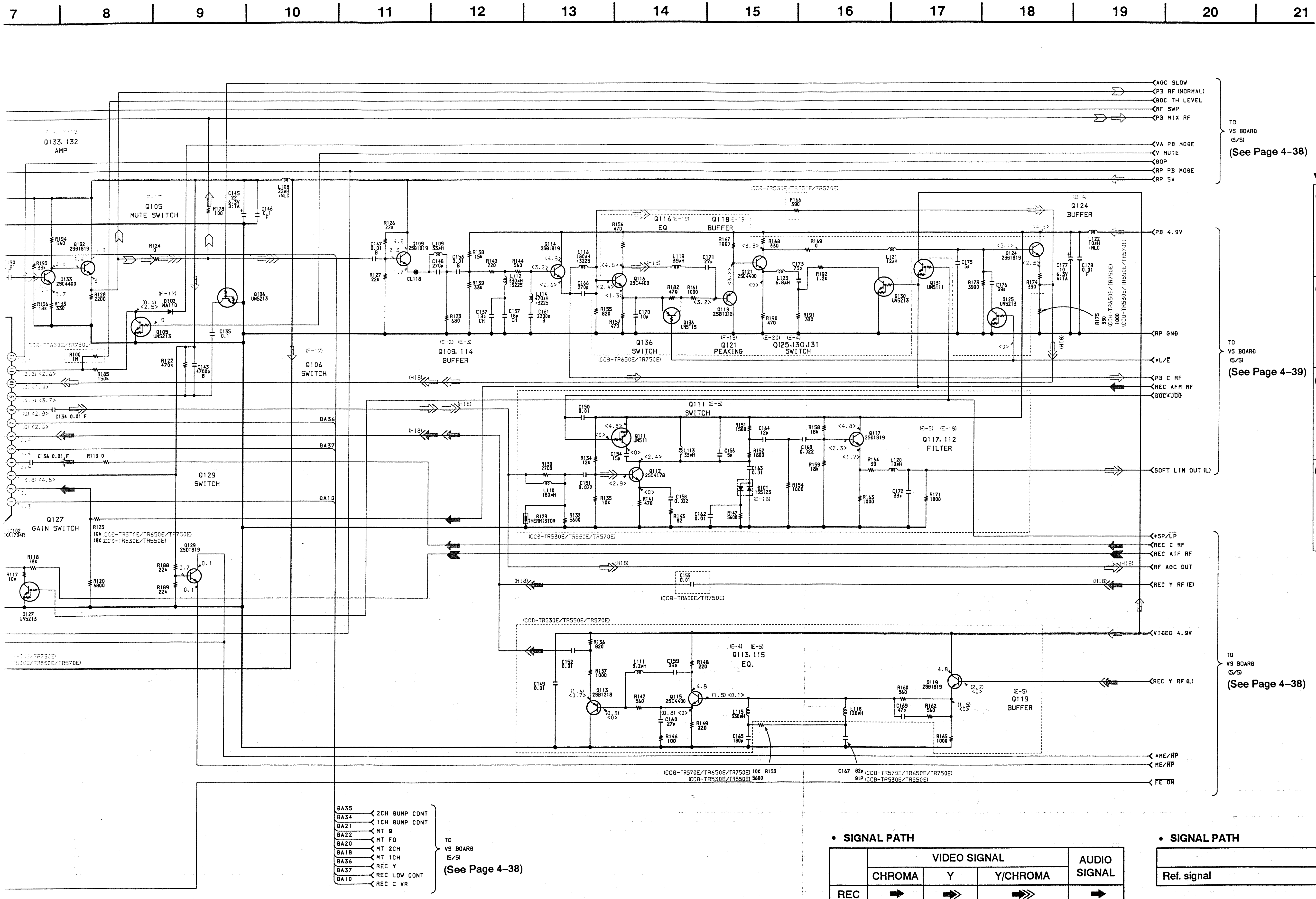
— Ref. No. VC BOARD: 1000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
VC BOARD (4/4)
IC773
SWITCH
IC775
BUFFER
IC774
AMP
IC772
SWITCH
IC776
A/D CONVERTER
IC777
STEADY SHOT CONTROL
CN775 8P 0.8MM
PS IN
GND
YS IN
Ø5V
P SENS
GND
GND
Y SENS
TO FP-49 BOARD W691
(See Page 4–8)
Ø5V
D3.6V
CAM GND
TO VC BOARD (2/4)
(See Page 4–14)
ZM SCK
ZM SO
CS ZTG
CS
CL
FLD
CGV
V RST
CAM SCK
CAM SO
CAM SI
CS V MICOM
TO VC BOARD (2/4)
(See Page 4–16)
IC777
CXP87132-010R
(CCD-TR750E:AEP, UK)
CXP87132-016R
(EXCEPT CCD-TR750E:AEP, UK)
X775 12MHz
21
22
09
VC BOARD(4/4)
21
6Vp-p
14.187 MHz
IC776 ⑩
22
1Vp-p
12 MHz
IC777 ㊵

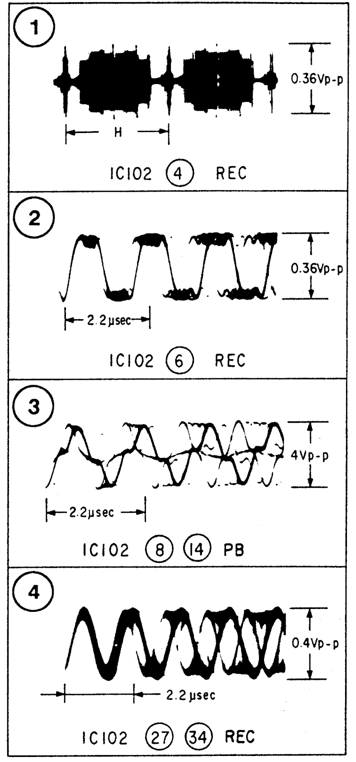
VS (REC/PB HEAD AMPLIFIER) SCHEMATIC DIAGRAM

— Ref. No. VS BOARD: 30000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
VS BOARD (1/5)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
CN102 6P (G-12)
CHECK PIN
REC 2
RP GND
RF SWP
PB RF
PB PCM RF
PB 1CH RF
CL106
CL101
CL102
CL103
CL105
LAN0101
RP SHIELD
LAN0102
RP SHIELD
LAN0103
RP SHIELD
CN101 13P (G-18)
1CH A (G)
1CH A (X)
1CH A (Y)
2CH A (G)
2CH A (Y)
2CH A (X)
1CH (G)
1CH (X)
1CH (Y)
FE (G)
FE (Y)
FE (X)
GND
1CH A
2CH B
FLYING ERASE
CL107
CL108
CL109
CL111
CL112
CL114
CL115
CL116
CL117
C102 39p (CCD-TR530E/TR550E/TR570E) 6p (CCD-TR650E/TR750E)
IC102 VIDEO HEAD AMP
IC102 CXA1704R
Q133, 132 AMP
Q105 MUTE SWITCH
Q106 SWITCH
Q129 SWITCH
Q127 GAIN SWITCH
Q126 BUFFER
Q134, 135 SWITCH
Q109, 114 BUFFER
Q116 EQ
Q118 BUFFER
Q136 SWITCH
Q121 PEAKING
Q125,130,131 SWITCH
Q111 SWITCH
Q113, 115 EQ.
FE BLOCK
Q102 SWITCH
Q101, 103 ERASE OSC
Q104 SWITCH
R114 8200 (CCD-TR650E/TR750E) 6800 (CCD-TR530E/TR550E/TR570E)
R123 10k (CCD-TR570E/TR650E/TR750E) 18K (CCD-TR530E/TR550E)
R109 47 (CCD-TR530E/TR550E/TR570E) 33 (CCD-TR650E/TR750E)
R108 18 (CCD-TR530E/TR550E/TR570E) 22 (CCD-TR650E/TR750E)
(CCD-TR570E/TR650E/TR750E) 10K R153 (CCD-TR530E/TR550E) 5600
DA35
DA34
DA21
DA22
DA20
DA18
DA36
DA37
DA10
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FO
MT 2CH
MT 1CH
REC Y
REC LOW CONT
REC C VR
TO VS BOARD (5/5)
(See Page 4–38)
09


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
Q133, 132
AMP
Q105
MUTE SWITCH
Q106
SWITCH
Q129
SWITCH
Q127
GAIN SWITCH
Q109, 114
BUFFER
Q116
EQ
Q118
BUFFER
Q124
BUFFER
Q136
SWITCH
Q121
PEAKING
Q125,130,131
SWITCH
Q111
SWITCH
Q117, 112
FILTER
Q113, 115
EQ.
Q119
BUFFER
AGC SLOW
PB RF (NORMAL)
DOC TH LEVEL
RF SWP
PB MIX RF
VA PB MODE
V MUTE
DOP
RP PB MODE
RP 5V
TO
VS BOARD
(5/5)
(See Page 4-38)
PB 4.9V
RP GND
L/E
PB C RF
REC AFM RF
DOC JOG
TO
VS BOARD
(5/5)
(See Page 4-39)
SOFT LIM OUT (L)
SP/LP
REC C RF
REC ATF RF
RF AGC OUT
REC Y RF (E)
VIDEO 4.9V
REC Y RF (L)
ME/RP
ME/RP
FE ON
TO
VS BOARD
(5/5)
(See Page 4-38)
DA35
DA34
DA21
DA22
DA20
DA18
DA36
DA37
DA10
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FO
MT 2CH
MT 1CH
REC Y
REC LOW CONT
REC C VR
TO
VS BOARD
(5/5)
(See Page 4-38)
(CCD-TR530E/TR550E/TR570E)
(CCD-TR650E/TR750E)
(CCD-TR570E/TR650E/TR750E) 10K R153
(CCD-TR530E/TR550E) 5600
C167 82p (CCD-TR570E/TR650E/TR750E)
91P (CCD-TR530E/TR550E)
IC102
XA1704R
R129
THERMISTOR

VS BOARD(1/5)



- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

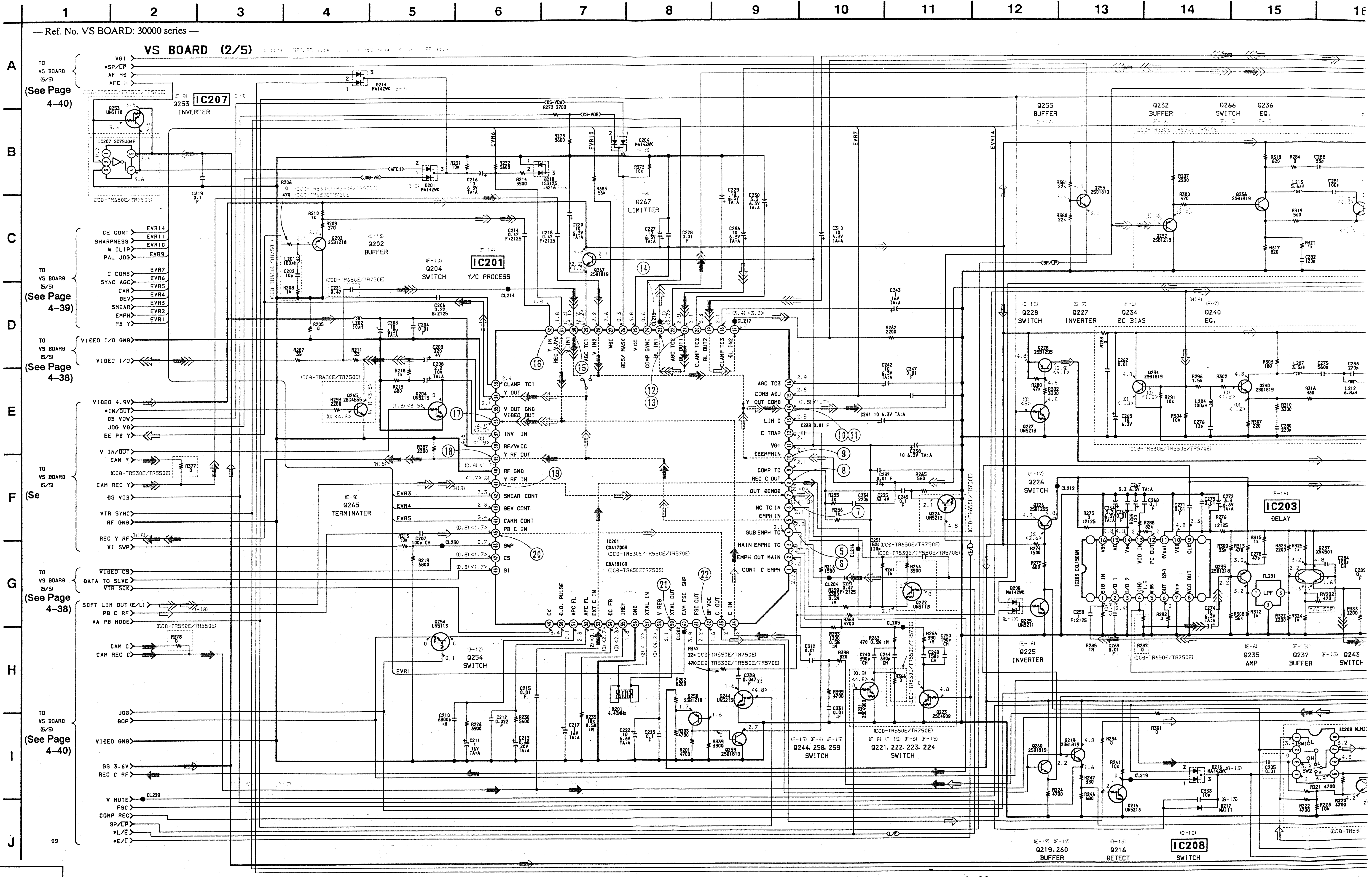
- **SIGNAL PATH**

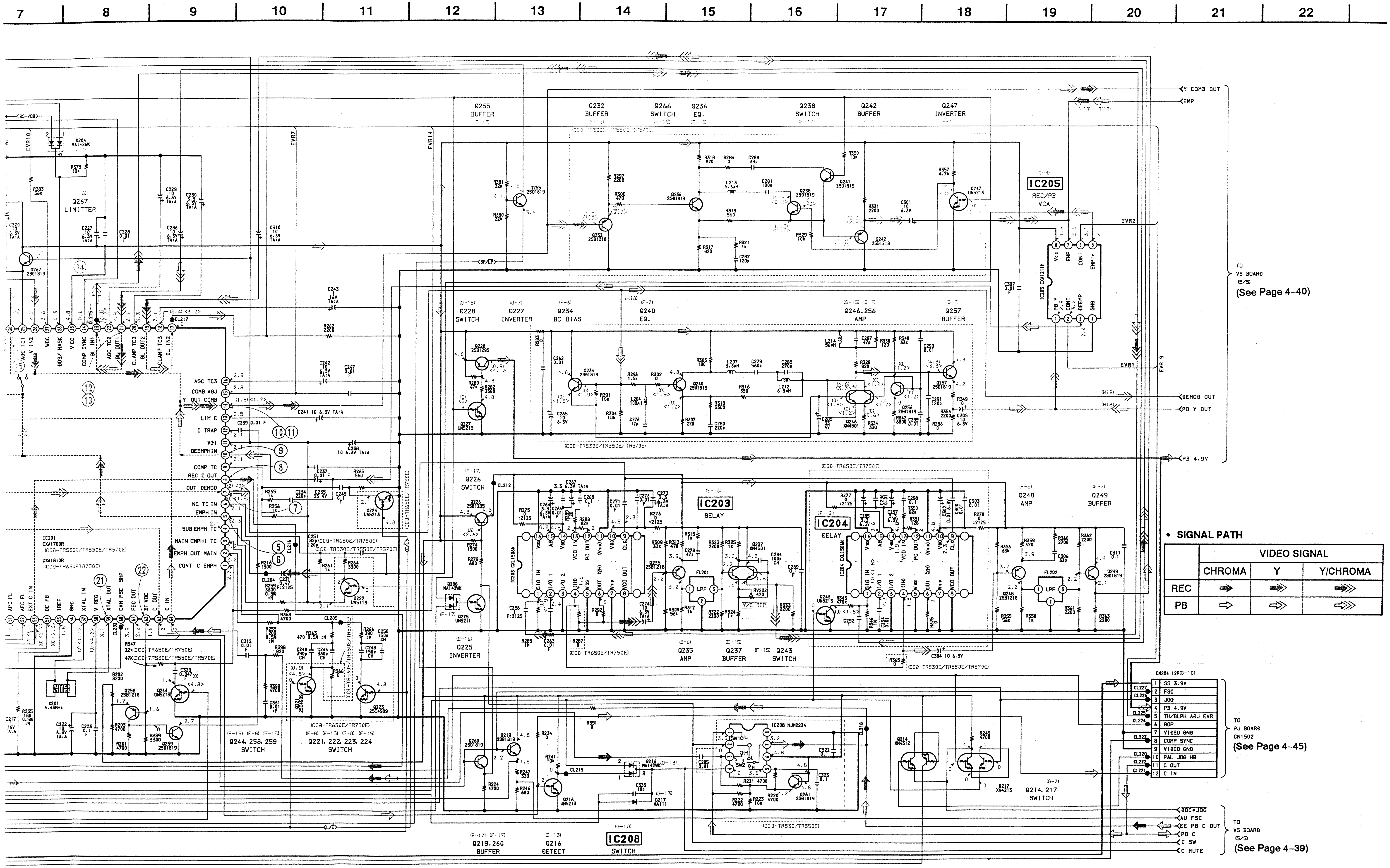
	REC	REC/PB	PB
Ref. signal	➤		▷

VS (Y/C PROCESS) SCHEMATIC DIAGRAM

- Refer to page 4-21 for Printed Wiring Board.

— Ref. No. VS BOARD: 30000 series —

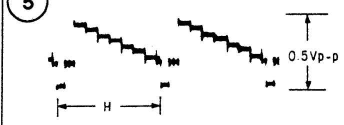

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
VS BOARD (2/5)
TO VS BOARD (5/5) (See Page 4-40)
VG1
SP/LP
AF H0
AFC H
IC207
Q253 INVERTER
Q253 UN5110
IC207 SC7SU04F
TO VS BOARD (5/5) (See Page 4-39)
CE CONT
SHARPNESS
W CLIP
PAL JOG
C COMB
SYNC AGC
CAR
DEV
SMEAR
EMPH
PB Y
EVR14
EVR11
EVR10
EVR9
EVR7
EVR6
EVR5
EVR4
EVR3
EVR2
EVR1
TO VS BOARD (5/5) (See Page 4-38)
VIDEO I/O GND
VIDEO I/O
VIDEO 4.9V
IN/OUT
DS VDW
JOG VD
EE PB Y
V IN/OUT
CAM Y
CAM REC Y
DS VDB
VTR SYNC
RF GND
REC Y RF
VI SWP
TO VS BOARD (5/5) (See Page 4-38)
VIDEO CS
DATA TO SLVE
VTR SCK
SOFT LIM OUT (E/L)
PB C RF
VA PB MODE
CAM C
CAM REC C
TO VS BOARD (5/5) (See Page 4-40)
JOG
DOP
VIDEO GND
SS 3.6V
REC C RF
V MUTE
FSC
COMP REC
SP/LP
L/E
E/C
Q202 2SB1218
Q202 BUFFER
Q204 SWITCH
IC201 Y/C PROCESS
Q247 2SB1819
Q267 LIMITTER
D201 MA142WK
D218 1SS123
D204 MA142WK
D214 MA142WK
Q265 2SC4555
Q204 UN5213
Q265 TERMINATER
CLAMP TC1
Y OUT
V OUT GND
VIDEO OUT
INV IN
RF/W CC
Y RF OUT
RF GND
Y RF IN
SMEAR CONT
DEV CONT
CARR CONT
PB C IN
SWP
CS
SI
Y IN
REC VGB
AGC TC1
V IN2
VCC
BDSY MASK
COMP SYNC
BL IN1
AGC TC2
PB OUT1
CLAMP TC2
BL OUT2
CLAMP TC3
BL IN2
AGC TC3
COMB ADJ
Y OUT COMB
LIM C
C TRAP
VG1
DEEMPHIN
COMP TC
REC C OUT
OUT DEMOD
NC TC IN
EMPH IN
SUB EMPH TC
MAIN EMPH1 TC
EMPH OUT MAIN
CONT C EMPH
CK
O.D. PULSE
APC FL
AFC FL
EXT C IN
DC FB
IREF
GND
XTAL IN
V REG
XTAL OUT
CAM FSC SHP
FSC OUT
BF VOC
C OUT
C IN
IC201 CXA1700R (CCD-TR530E/TR550E/TR570E)
CXA1810R (CCD-TR650E/TR750E)
X201 4.43MHz
Q254 UN5113
Q254 SWITCH
Q258 2SB1218
Q244 UN5213
Q259 2SB1819
Q244, 258, 259 SWITCH
Q222 UN5113
Q221 2SC4909
Q223 2SC4909
Q224 UN5213
Q221, 222, 223, 224 SWITCH
Q255 BUFFER
Q255 2SB1819
Q232 BUFFER
Q232 2SB1218
Q266 SWITCH
Q236 EQ.
Q236 2SB1819
Q228 SWITCH
Q228 2SB1295
Q227 INVERTER
Q227 UN5213
Q234 DC BIAS
Q234 2SB1819
Q240 EQ.
Q240 2SB1819
Q226 SWITCH
Q226 2SB1295
IC203 DELAY
IC203 CXL1504N
VCO IN
PC OUT
VCO OUT
CLK
Q225 UN5211
Q225 INVERTER
D208 MA142WK
Q235 AMP
Q235 2SB1218
Q237 BUFFER
Q237 XN4501
Q243 SWITCH
FL201
LPF
Y/C SEP
Q219, 260 BUFFER
Q260 2SB1819
Q219 2SB1819
Q216 DETECT
Q216 UN5213
D216 MA142WK
D217 MA111
IC208 SWITCH
IC208 NJM2
(CCD-TR650E/TR750E)
(CCD-TR530E/TR550E/TR570E)
(CCD-TR530E/TR550E)
09


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
Q255 BUFFER
Q232 BUFFER
Q266 SWITCH
Q236 EQ.
Q238 SWITCH
Q242 BUFFER
Q247 INVERTER
IC205 REC/PB VCA
Q267 LIMITTER
Q228 SWITCH
Q227 INVERTER
Q234 DC BIAS
Q240 EQ.
Q246, 256 AMP
Q257 BUFFER
Q226 SWITCH
IC203 DELAY
IC204 DELAY
Q248 AMP
Q249 BUFFER
Q225 INVERTER
Q235 AMP
Q237 BUFFER
Q243 SWITCH
Q244, 258, 259 SWITCH
Q221, 222, 223, 224 SWITCH
Q219, 260 BUFFER
Q216 DETECT
IC208 SWITCH
Q214, 217 SWITCH
IC201 CXA1700R (CCD-TR530E/TR550E/TR570E)
CXA1810R (CCD-TR650E/TR750E)
AGC TC3
COMB ADJ
Y OUT COMB
LIM C
C TRAP
VG1
DEEMPHIN
COMP TC
REC C OUT
OUT DEMOD
NC TC IN
EMPH IN
SUB EMPH TC
MAIN EMPH1 TC
EMPH OUT MAIN
CONT C EMPH
Y COMB OUT
EMP
DEMOD OUT
PB Y OUT
PB 4.9V
TO VS BOARD (5/5) (See Page 4-40)
CN204 12P
1 SS 3.9V
2 FSC
3 JOG
4 PB 4.9V
5 TH/BLPH ADJ EVR
6 DOP
7 VIDEO GND
8 COMP SYNC
9 VIDEO GND
10 PAL JOG HD
11 C OUT
12 C IN
TO PJ BOARD CN1502 (See Page 4-45)
DOC+JOG
AU FSC
EE PB C OUT
PB C
C SW
C MUTE
TO VS BOARD (5/5) (See Page 4-39)

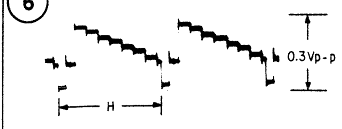
- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	➡
PB	⇨	⇨	⇨

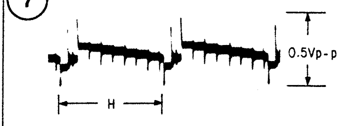
VS BOARD (2/5)

⑤


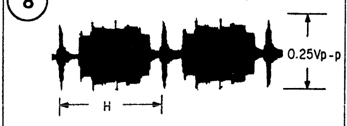
IC201 ⑤ REC

⑥


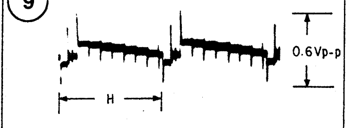
IC201 ⑤ PB

⑦


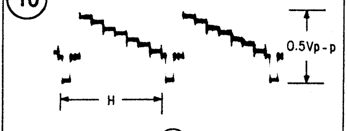
IC201 ⑦ PB

⑧


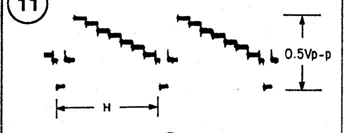
IC201 ⑧ REC

⑨


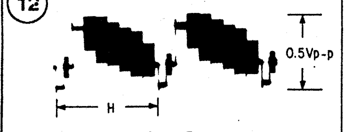
IC201 ⑩ PB

⑩


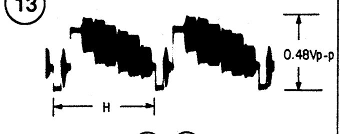
IC201 ⑭ REC

⑪


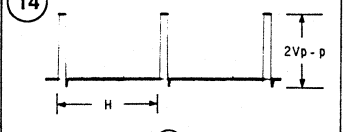
IC201 ⑭ PB

⑫


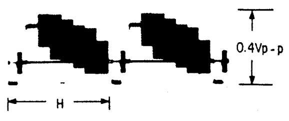
IC201 ㉑ ㉓ REC

⑬


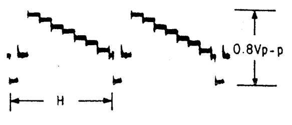
IC201 ㉑ ㉓ PB

⑭


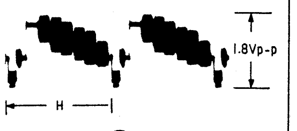
IC201 ㉔ REC/PB

⑮


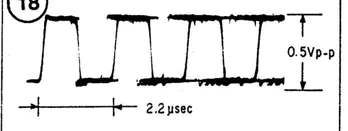
IC201 ㉚ REC

⑯


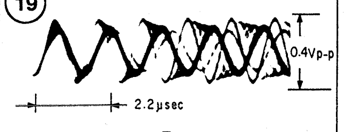
IC201 ㉜ PB

⑰


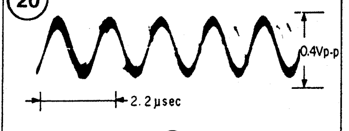
IC201 ㊱ PB

⑱


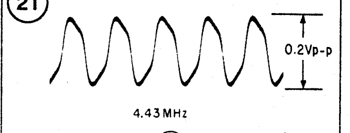
IC201 ㊴ REC

⑲


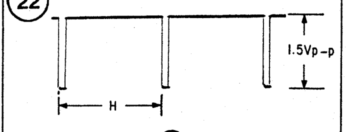
IC201 ㊶ PB

⑳


IC201 ㊺ PB

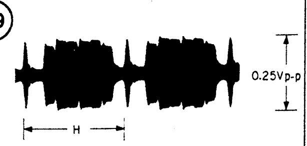
㉑


IC201 (59) REC/PB

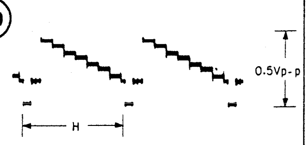
㉒


IC201 (62) REC/PB

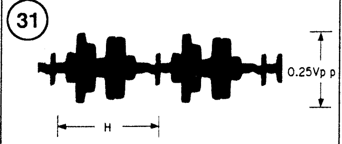
VS BOARD (3/5)

㉙


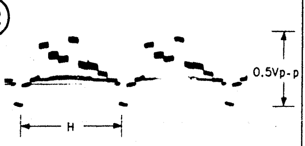
IC251 ③ ⑦ PB

㉚


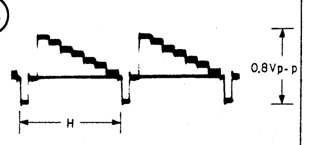
IC251 ⑪ ⑬ PB

㉛


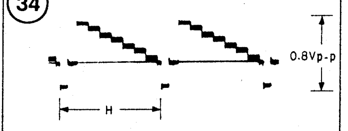
IC251 ⑮ ㉙ CAMERA

㉜


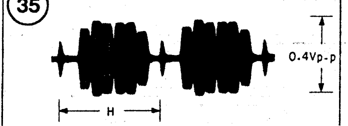
IC251 ⑰ ㉕ CAMERA

㉝


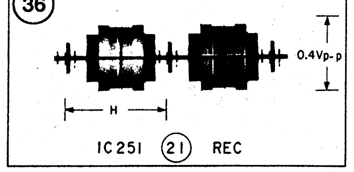
IC251 ⑲ PB

㉞


IC251 ⑲ REC

㉟


IC251 ㉑ PB

㊱


IC251 ㉑ REC

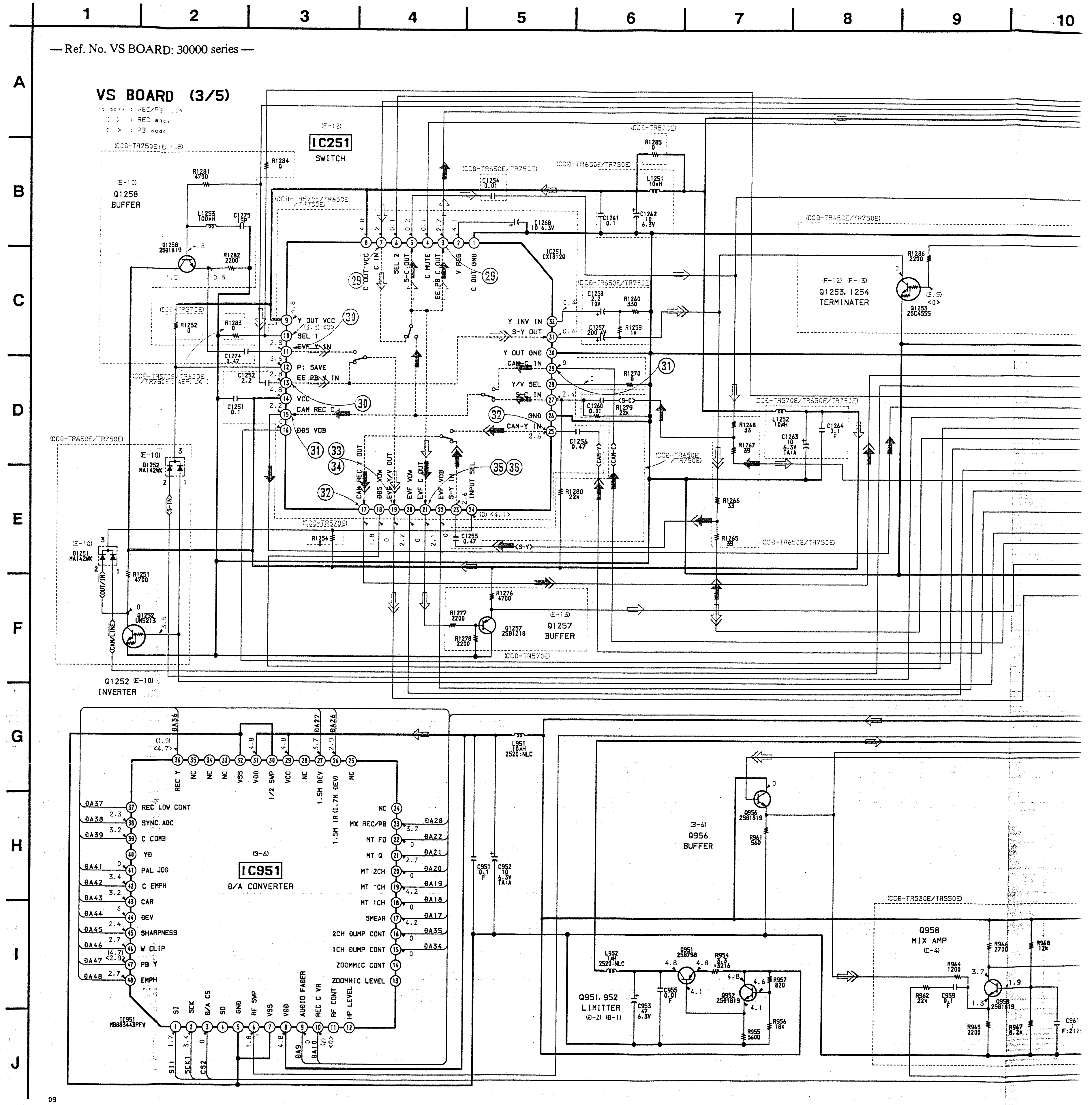
- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB		⇨	

VS (Hi 8 I/O, ELECTRIC VOLUME) SCHEMATIC DIAGRAM

- Refer to page 4-21 for Printed Wiring Board.

— Ref. No. VS BOARD: 30000 series —


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
VS BOARD (3/5)
IC251
SWITCH
CX1812Q
Q1258
BUFFER
2SB1819
Q1253, 1254
TERMINATER
2SC4555
Q1257
BUFFER
2SB1218
Q1252
INVERTER
UN5213
D1251
MA142WK
D1252
MA142WK
IC951
D/A CONVERTER
MB88344BPFV
Q956
BUFFER
2SB1819
Q951, 952
LIMITTER
2SB798
Q958
MIX AMP
2SB1819
Y OUT VCC
SEL 1
EVF Y IN
P: SAVE
EE PB Y IN
VCC
CAM REC C
D09 VDB
Y INV IN
S-Y OUT
Y OUT GND
CAM C IN
Y/V SEL
S-C IN
GND
CAM-Y IN
C OUT VCC
C IN
SEL 2
S-C OUT
C MUTE
EE PB C OUT
V REG
C OUT GND
CAM REC Y
D09 VDW
EVF Y OUT
EVF VDW
EVF C OUT
EVF VDB
S-Y IN
INPUT SEL
REC Y
VSS
VDD
1/2 SWP
VCC
1.5H DEV
1.5H IR (1.7H DEV)
REC LOW CONT
SYNC AGC
C COMB
YB
PAL JOG
C EMPH
CAR
DEV
SHARPNESS
W CLIP
PB Y
EMPH
NC
MX REC/PB
MT FO
MT Q
MT 2CH
MT 1CH
SMEAR
2CH DUMP CONT
1CH DUMP CONT
ZOOMMIC CONT
ZOOMMIC LEVEL
SI
SCK
D/A CS
SO
GND
RF SWP
VDD
AUDIO FADER
REC C VR
RF CONT
HP LEVEL

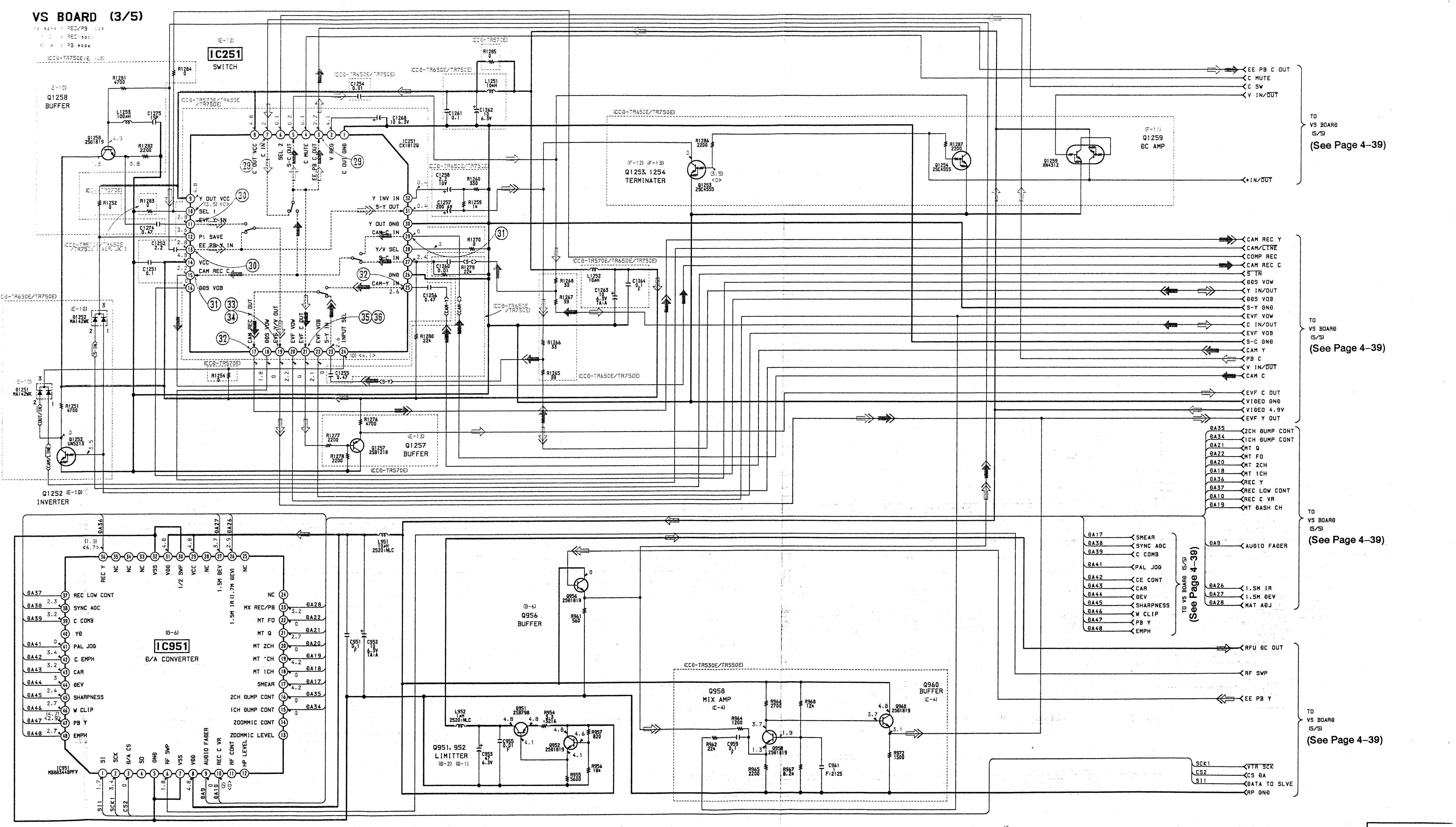
09

'S (Hi 8 I/O, ELECTRIC VOLUME) SCHEMATIC DIAGRAM

• Refer to page 4-21 for Printed Wiring Board.

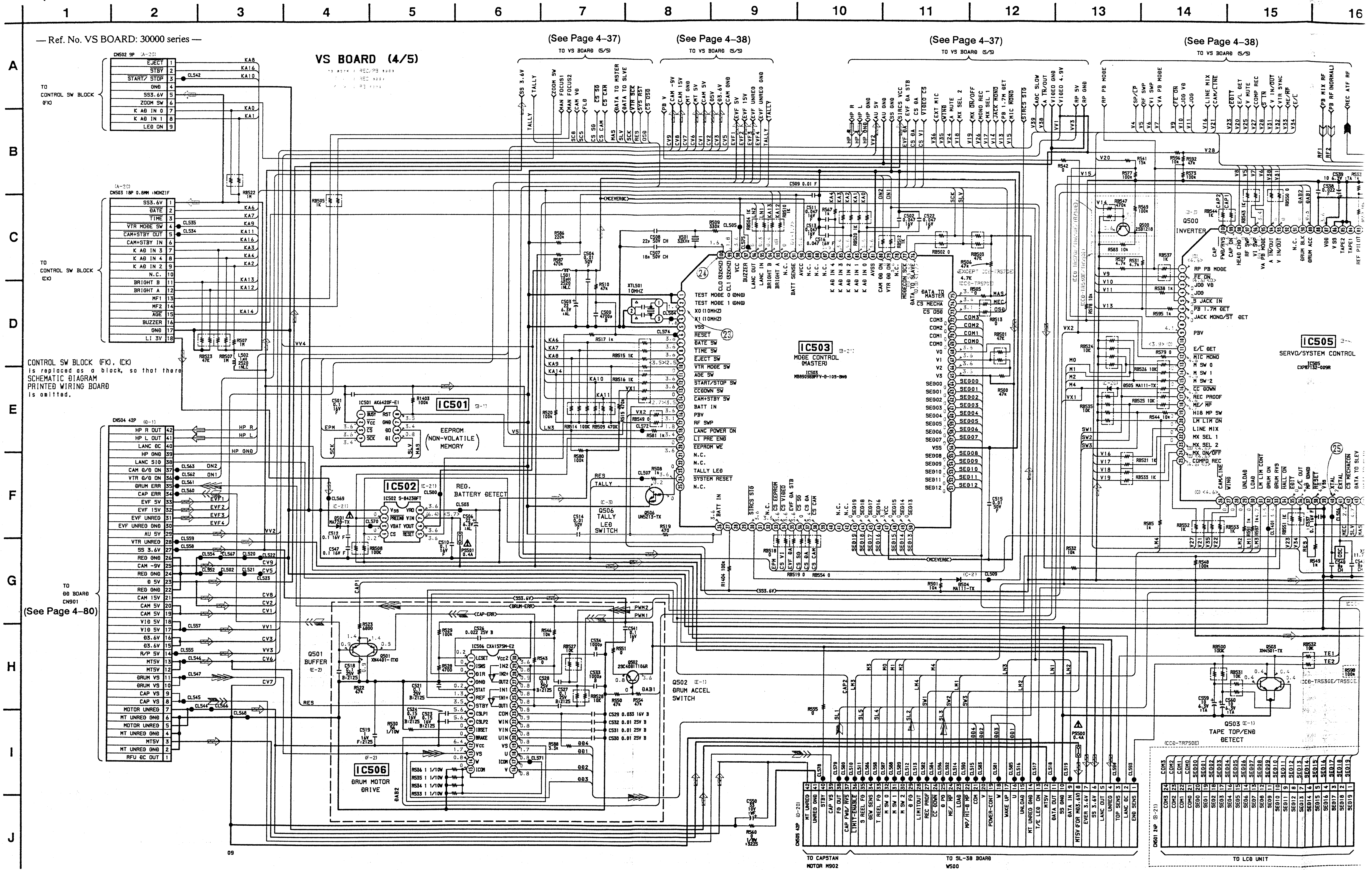
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

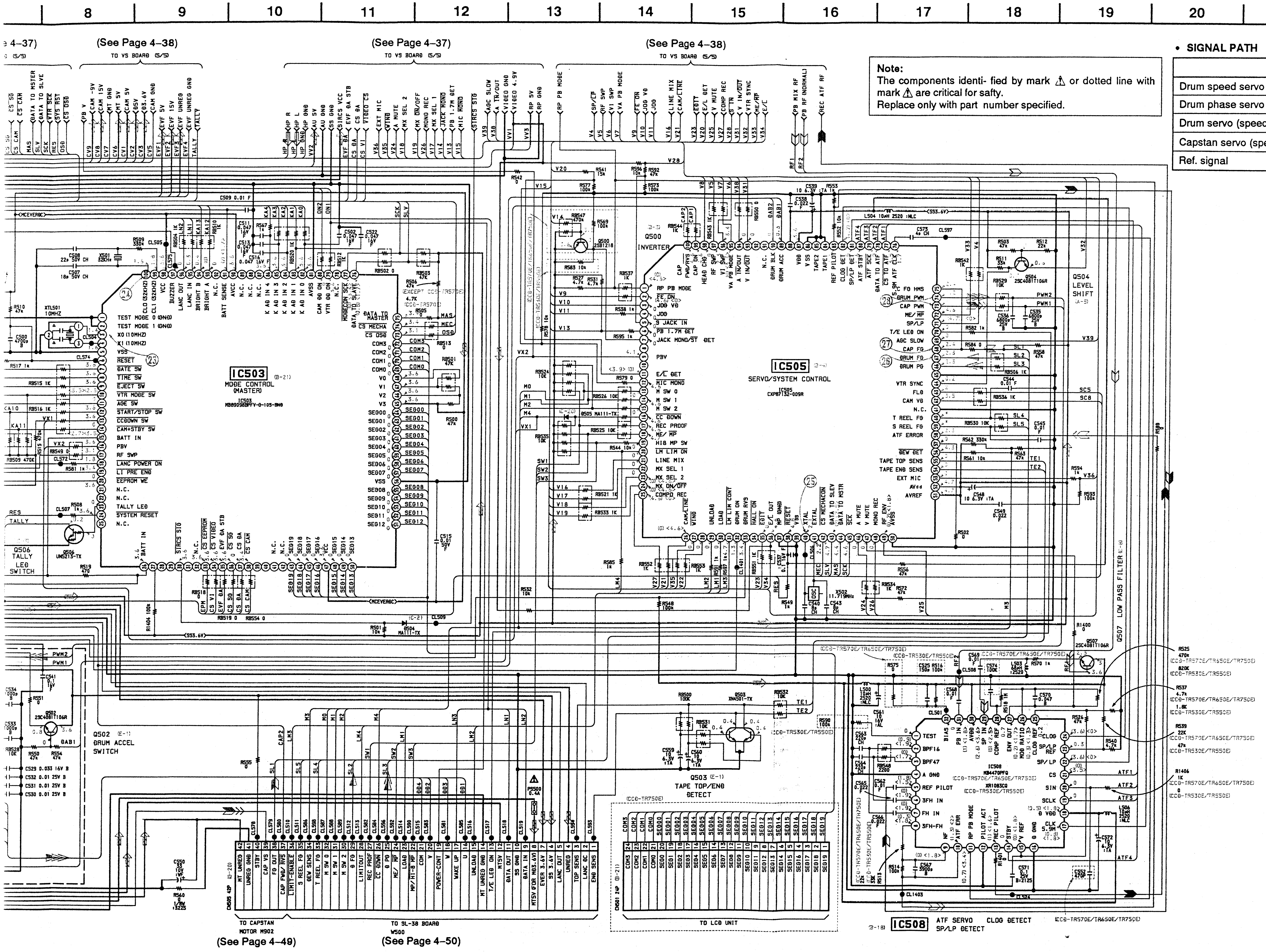
— Ref. No. VS BOARD: 30000 series —


VS BOARD (3/5)
IC251
SWITCH
CX1812Q
Q1258
BUFFER
2SB1819
Q1252
INVERTER
UN5213
D1252
MA142WK
D1251
MA142WK
Q1257
BUFFER
2SB1218
Q1253, 1254
TERMINATER
2SC4555
Q1259
DC AMP
XN4312
IC951
D/A CONVERTER
MB88344BPFV
Q956
BUFFER
Q951, 952
LIMITTER
Q958
MIX AMP
Q960
BUFFER
(CCD-TR530E/TR550E)
(CCD-TR570E)
(CCD-TR650E/TR750E)
EE PB C OUT
C MUTE
C SW
V IN/OUT
TO VS BOARD (5/5)
(See Page 4-39)
CAM REC Y
CAM/LINE
COMP REC
CAM REC C
S IN
DDS VOW
Y IN/OUT
DDS VOB
S-Y GND
EVF VOW
C IN/OUT
EVF VOB
S-C GND
CAM Y
PB C
V IN/OUT
CAM C
EVF C OUT
VIDEO GND
VIDEO 4.9V
EVF Y OUT
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FO
MT 2CH
MT 1CH
REC Y
REC LOW CONT
REC C VR
MT DASH CH
AUDIO FADER
SHEAR
SYNC AGC
C COMB
PAL JOG
CE CONT
CAR
DEV
SHARPNESS
W CLIP
PB Y
EMPH
1.5M IR
1.5M DEV
MAT ADJ
RFU DC OUT
RF SWP
EE PB Y
VTR SCK
CS DA
DATA TO SLVE
RP GND
Y OUT VCC
SEL 1
EVF Y IN
P: SAVE
EE PB Y IN
VCC
CAM REC C
DDS VOB
C OUT VCC
C IN
SEL 2
S-C OUT
C MUTE
EE PB C OUT
V REG
C OUT GND
Y INV IN
S-Y OUT
Y OUT GND
CAM-C IN
Y/V SEL
S-C IN
GND
CAM-Y IN
CAM REC Y OUT
DDS VOW
EVF Y/V OUT
EVF VOW
EVF C OUT
EVF VOB
S-Y IN
INPUT SEL
REC Y
VSS
VDD
1/2 SWP
VCC
1.5M DEV
1.5M IR (1.7M DEV)
NC
MX REC/PB
MT FO
MT Q
MT 2CH
MT 1CH
SMEAR
2CH DUMP CONT
1CH DUMP CONT
ZOOMMIC CONT
ZOOMMIC LEVEL
REC LOW CONT
SYNC AGC
C COMB
YO
PAL JOG
C EMPH
CAR
DEV
SHARPNESS
W CLIP
PB Y
EMPH
SI
SCK
D/A CS
SO
GND
RF SWP
VSS
AUDIO FADER
REC C VR
RF CONT
HP LEVEL

VS (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

• Refer to page 4-21 for Printed Wiring Board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
— Ref. No. VS BOARD: 30000 series —
VS BOARD (4/5)
(See Page 4-37)
TO VS BOARD (5/5)
(See Page 4-38)
TO VS BOARD (5/5)
(See Page 4-37)
TO VS BOARD (5/5)
(See Page 4-38)
TO VS BOARD (5/5)
TO CONTROL SW BLOCK (FK)
TO CONTROL SW BLOCK (CK)
CONTROL SW BLOCK (FK), (CK) is replaced as a block, so that there SCHEMATIC DIAGRAM PRINTED WIRING BOARD is omitted.
CN502 9P
CN503 18P 0.8MM :NONZIF
CN504 42P
TO DD BOARD CN901
(See Page 4-80)
IC501
EEPROM (NON-VOLATILE MEMORY)
IC501 AK6420F-E1
IC502
REG. BATTERY DETECT
IC502 S-84230FT
IC503
MODE CONTROL (MASTER)
IC505
SERVO/SYSTEM CONTROL
IC506
DRUM MOTOR DRIVE
IC506 CXA1575M-E2
Q501 BUFFER
Q502 DRUM ACCEL SWITCH
Q500 INVERTER
Q506 TALLY LED SWITCH
Q503 TAPE TOP/END DETECT
XTL501 10MHZ
X501 32KHz
CN505 42P
TO CAPSTAN MOTOR M902
(See Page 4-49)
TO SL-38 BOARD W500
(See Page 4-50)
CN501 24P
TO LCD UNIT
(CCD-TR750E)
09


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
(See Page 4-37)
(See Page 4-38)
TO VS BOARD (5/5)
(See Page 4-37)
TO VS BOARD (5/5)
(See Page 4-38)
TO VS BOARD (5/5)
IC503
MODE CONTROL (MASTER)
IC505
SERVO/SYSTEM CONTROL
Q500 INVERTER
Q504 LEVEL SHIFT
Q506 TALLY LED SWITCH
Q502 DRUM ACCEL SWITCH
Q503 TAPE TOP/END DETECT
Q507 LOW PASS FILTER
IC508 ATF SERVO CLOG DETECT SP/LP DETECT
TO CAPSTAN MOTOR M902
(See Page 4-49)
TO SL-38 BOARD W500
(See Page 4-50)
TO LCD UNIT
CN501 24P
CN505 42P

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

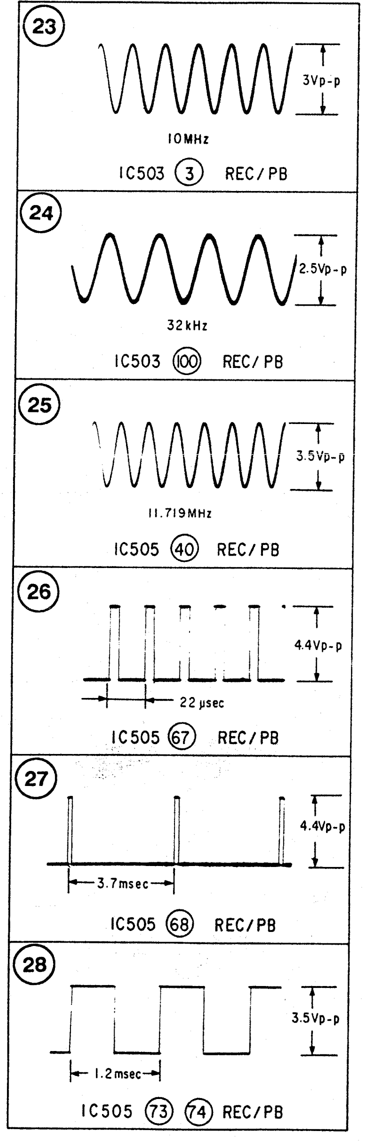
- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo (speed and phase)		▷	
Capstan servo (speed and phase)		▷	
Ref. signal			

- **SIGNAL PATH**

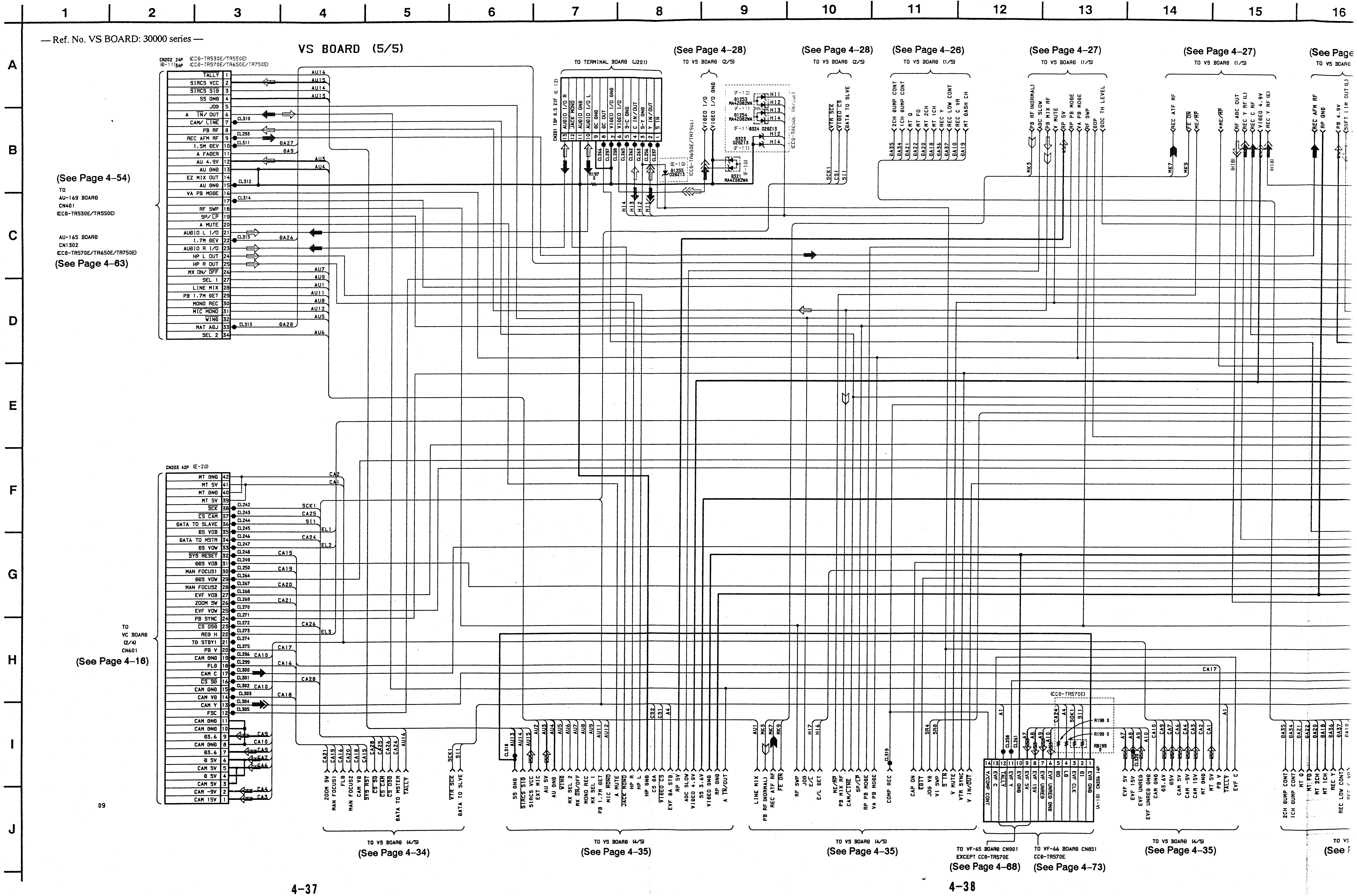
	AUDIO SIGNAL
REC	
PB	⇨

VS BOARD (4/5)

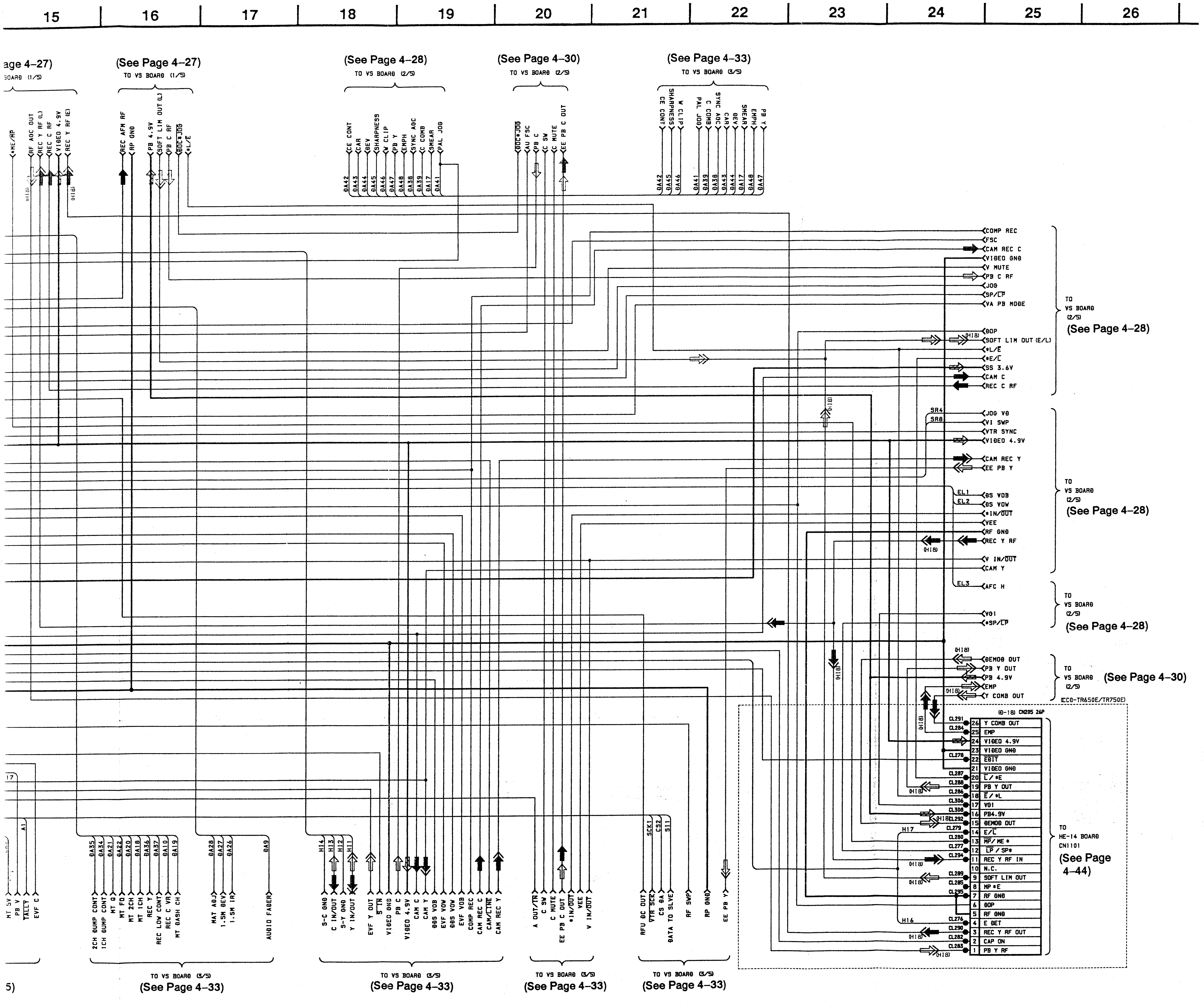

23
10MHz
3Vp-p
IC503 (3) REC/PB
24
32kHz
2.5Vp-p
IC503 (100) REC/PB
25
11.719MHz
3.5Vp-p
IC505 (40) REC/PB
26
22 µsec
4.4Vp-p
IC505 (67) REC/PB
27
3.7msec
4.4Vp-p
IC505 (68) REC/PB
28
1.2msec
3.5Vp-p
IC505 (73) (74) REC/PB

VS (SIGNAL I/O) SCHEMATIC DIAGRAM

- Refer to page 4-21 for Printed Wiring Board.



— Ref. No. VS BOARD: 30000 series —
VS BOARD (5/5)
CN202 24P (CCD-TR530E/TR550E) (B-11)34P (CCD-TR570E/TR650E/TR750E)
(See Page 4-54)
TO AU-169 BOARD CN401 (CCD-TR530E/TR550E)
AU-165 BOARD CN1302 (CCD-TR570E/TR650E/TR750E)
(See Page 4-63)
CN203 42P (E-20)
TO VC BOARD (2/4) CN601
(See Page 4-16)
TO TERMINAL BOARD (J201)
CN201 13P 0.5 ZIF (E-12)
(See Page 4-28)
TO VS BOARD (2/5)
(See Page 4-28)
TO VS BOARD (2/5)
(See Page 4-26)
TO VS BOARD (1/5)
(See Page 4-27)
TO VS BOARD (1/5)
(See Page 4-27)
TO VS BOARD (1/5)
TO VS BOARD (4/5)
(See Page 4-34)
TO VS BOARD (4/5)
(See Page 4-35)
TO VS BOARD (4/5)
(See Page 4-35)
TO VF-65 BOARD CN901 EXCEPT CCD-TR570E
(See Page 4-68)
TO VF-66 BOARD CN851 CCD-TR570E
(See Page 4-73)
TO VS BOARD (4/5)
(See Page 4-35)
CN206 14P (A-18)
(CCD-TR570E)
D1253 MA4Z082WA
D1254 MA4Z082WA
D1255 02DZ13
D323 02DZ13
D324 02DZ13
D321 MA4Z082WA
R197
R198 0
R199 0
RB199
09


15
16
17
18
19
20
21
22
23
24
25
26
(See Page 4-27)
TO VS BOARD (1/5)
(See Page 4-28)
TO VS BOARD (2/5)
(See Page 4-30)
TO VS BOARD (2/5)
(See Page 4-33)
TO VS BOARD (3/5)
COMP REC
FSC
CAM REC C
VIDEO GND
V MUTE
PB C RF
JOG
SP/LP
VA PB MODE
TO VS BOARD (2/5)
(See Page 4-28)
DOP
SOFT LIM OUT (E/L)
*L/E
*E/C
SS 3.6V
CAM C
REC C RF
JOG VD
VI SWP
VTR SYNC
VIDEO 4.9V
CAM REC Y
EE PB Y
DS VDD
DS VDW
*IN/OUT
VEE
RF GND
REC Y RF
V IN/OUT
CAM Y
AFC H
TO VS BOARD (2/5)
(See Page 4-28)
VD1
*SP/LP
TO VS BOARD (2/5)
(See Page 4-28)
DEMOD OUT
PB Y OUT
PB 4.9V
EMP
Y COMB OUT
TO VS BOARD (2/5)
(See Page 4-30)
(CCD-TR650E/TR750E)
(D-18) CN205 26P
26 Y COMB OUT
25 EMP
24 VIDEO 4.9V
23 VIDEO GND
22 EDIT
21 VIDEO GND
20 C/*E
19 PB Y OUT
18 E/*L
17 VD1
16 PB4.9V
15 DEMOD OUT
14 E/L
13 MP/ME*
12 LP/SP*
11 REC Y RF IN
10 N.C.
9 SOFT LIM OUT
8 MP*E
7 RF GND
6 DOP
5 RF GND
4 E DET
3 REC Y RF OUT
2 CAP ON
1 PB Y RF
TO ME-14 BOARD CN1101
(See Page 4-44)
TO VS BOARD (3/5)
(See Page 4-33)
TO VS BOARD (3/5)
(See Page 4-33)
TO VS BOARD (3/5)
(See Page 4-33)
TO VS BOARD (3/5)
(See Page 4-33)

- **SIGNAL PATH**

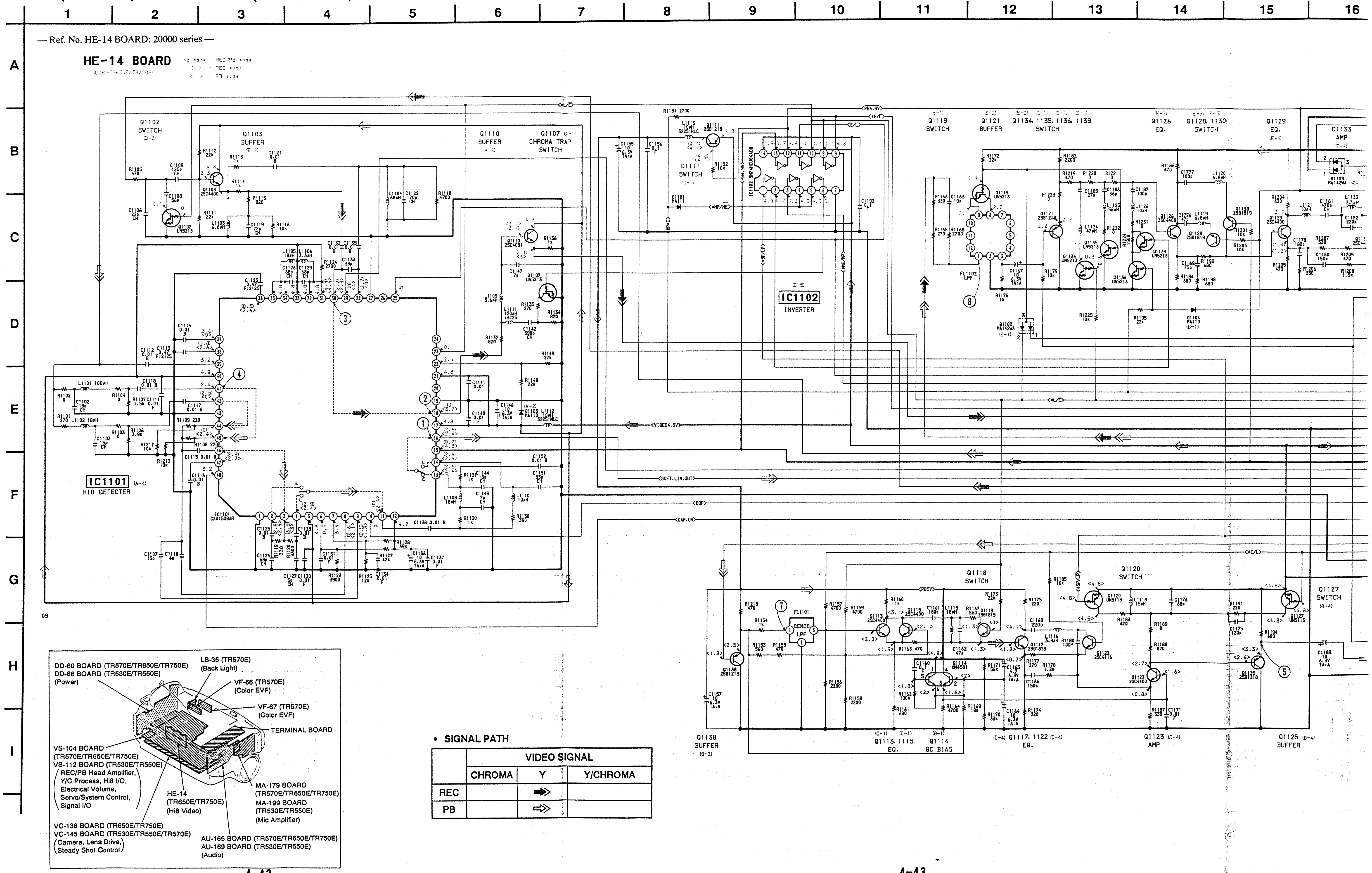
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡		➡
PB	⇨	⇨	⇨	⇨

- **SIGNAL PATH**

	REC	REC/PB	PB
Ref. signal	➡		⇨

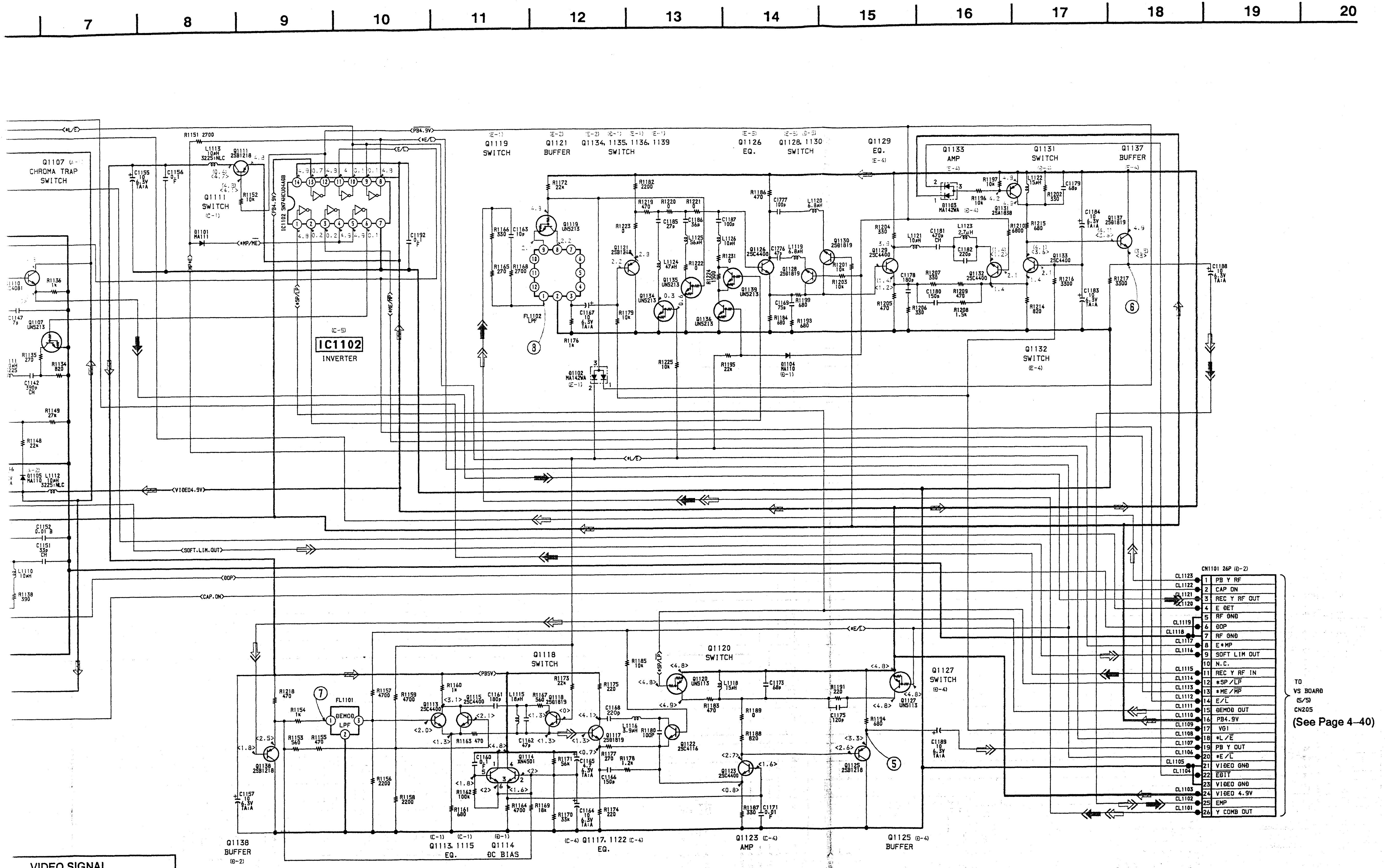
HE-14 (Hi 8 VIDEO) SCHEMATIC DIAGRAM (TR650E/TR750E)

— Ref. No. HE-14 BOARD: 20000 series —

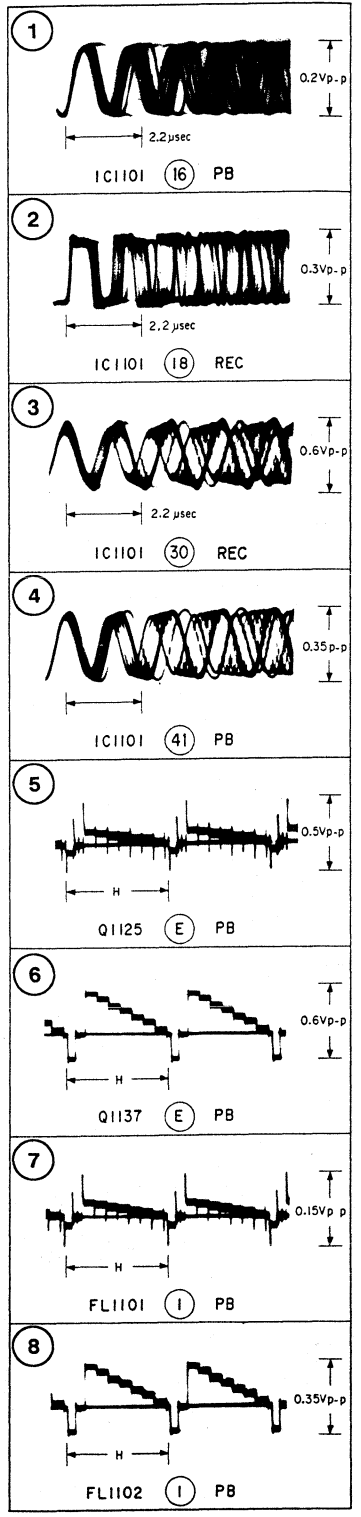

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
HE-14 BOARD
Q1102 SWITCH
Q1103 BUFFER
Q1110 BUFFER
Q1107 CHROMA TRAP SWITCH
Q1111 SWITCH
IC1102 INVERTER
IC1101 HI8 DETECTER
IC1101 CXA1509AR
Q1119 SWITCH
Q1121 BUFFER
Q1134, 1135, 1136, 1139 SWITCH
Q1126 EQ.
Q1128, 1130 SWITCH
Q1129 EQ.
Q1133 AMP
Q1118 SWITCH
Q1120 SWITCH
Q1127 SWITCH
Q1138 BUFFER
Q1113, 1115 EQ.
Q1114 DC BIAS
Q1117, 1122 EQ.
Q1123 AMP
Q1125 BUFFER
FL1101 DEMOD LPF
FL1102 LPF
<PB4.9V>
<VIDEO4.9V>
<SOFT.LIM.OUT>
<DOP>
<CAP.ON>
<PBSV>
DD-60 BOARD (TR570E/TR650E/TR750E)
DD-66 BOARD (TR530E/TR550E)
(Power)
LB-35 (TR570E)
(Back Light)
VF-66 (TR570E)
(Color EVF)
VF-67 (TR570E)
(Color EVF)
TERMINAL BOARD
VS-104 BOARD (TR570E/TR650E/TR750E)
VS-112 BOARD (TR530E/TR550E)
REC/PB Head Amplifier, Y/C Process, Hi8 I/O, Electrical Volume, Servo/System Control, Signal I/O
HE-14 (TR650E/TR750E) (Hi8 Video)
MA-179 BOARD (TR570E/TR650E/TR750E)
MA-199 BOARD (TR530E/TR550E)
(Mic Amplifier)
VC-138 BOARD (TR650E/TR750E)
VC-145 BOARD (TR530E/TR550E/TR570E)
(Camera, Lens Drive, Steady Shot Control)
AU-165 BOARD (TR570E/TR650E/TR750E)
AU-169 BOARD (TR530E/TR550E)
(Audio)

- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	


7
8
9
10
11
12
13
14
15
16
17
18
19
20
Q1107 CHROMA TRAP SWITCH
Q1111 SWITCH
IC1102 INVERTER
Q1119 SWITCH
Q1121 BUFFER
Q1134, 1135, 1136, 1139 SWITCH
Q1126 EQ.
Q1128, 1130 SWITCH
Q1129 EQ.
Q1133 AMP
Q1131 SWITCH
Q1137 BUFFER
Q1132 SWITCH
FL1102 LPF
FL1101 DEMOD LPF
Q1118 SWITCH
Q1120 SWITCH
Q1127 SWITCH
Q1138 BUFFER
Q1113, 1115 EQ.
Q1114 DC BIAS
Q1117, 1122 EQ.
Q1123 AMP
Q1125 BUFFER
<VIDEO4.9V>
<SOFT.LIM.OUT>
<DOP>
<CAP.ON>
<PB4.9V>
<PB5V>
<E/L>
CN1101 26P (D-2)
CL1123 1 PB Y RF
CL1122 2 CAP ON
CL1121 3 REC Y RF OUT
CL1120 4 E DET
5 RF GND
CL1119 6 DOP
CL1118 7 RF GND
CL1117 8 E*MP
CL1116 9 SOFT LIM OUT
10 N.C.
CL1115 11 REC Y RF IN
CL1114 12 *SP/LP
CL1113 13 *ME/MP
CL1112 14 E/L
CL1111 15 DEMOD OUT
CL1110 16 PB4.9V
CL1109 17 VG1
CL1108 18 *L/E
CL1107 19 PB Y OUT
CL1106 20 *E/L
CL1105 21 VIDEO GND
CL1104 22 EDIT
23 VIDEO GND
CL1103 24 VIDEO 4.9V
CL1102 25 EMP
CL1101 26 Y COMB OUT
TO VS BOARD (5/5) CN205
(See Page 4–40)

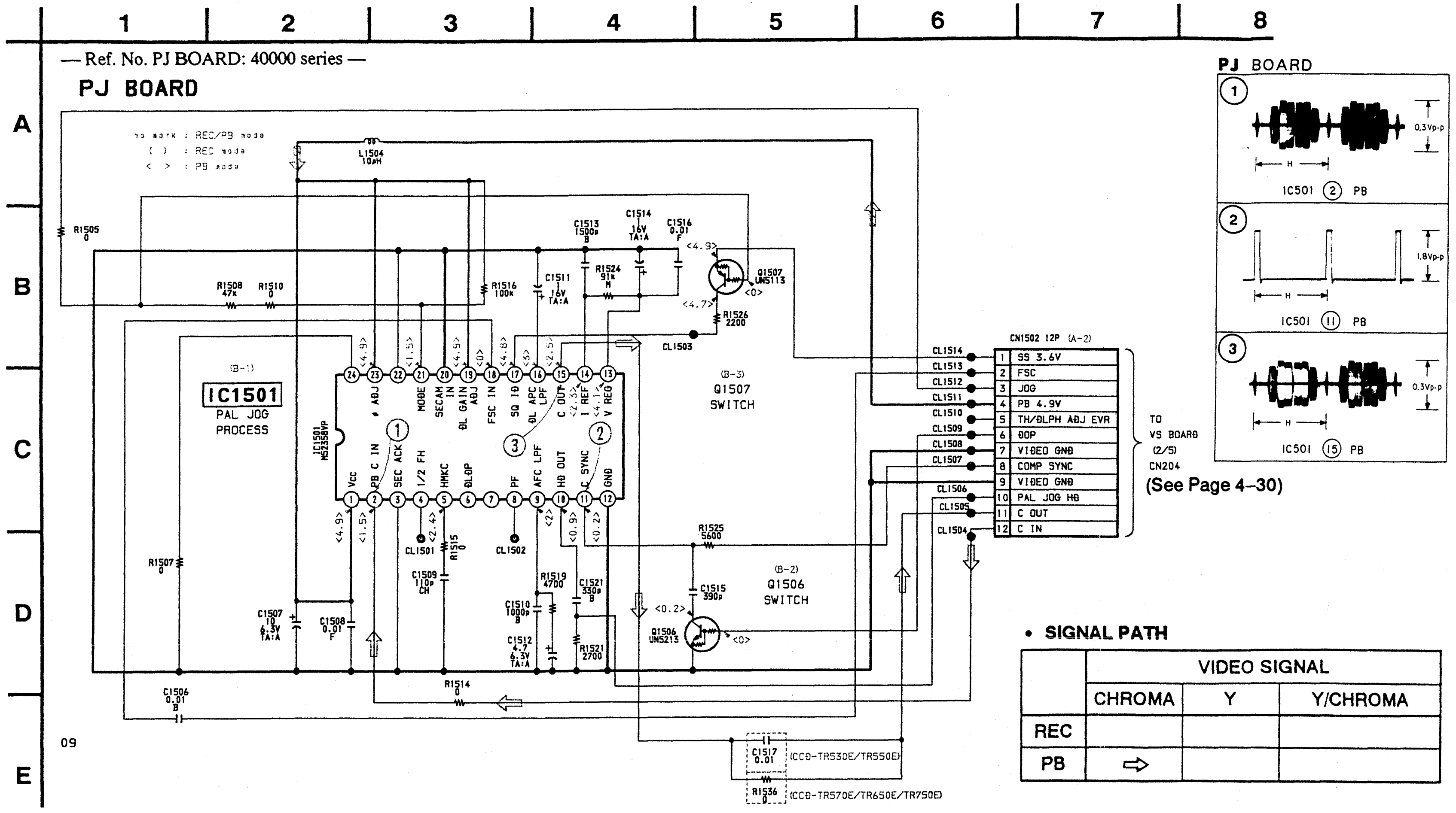
HE-14 BOARD



VIDEO SIGNAL	
Y	Y/CHROMA
➡	
⇨	

PJ (PAL JOG PROCESS) SCHEMATIC DIAGRAM

— Ref. No. PJ BOARD: 40000 series —

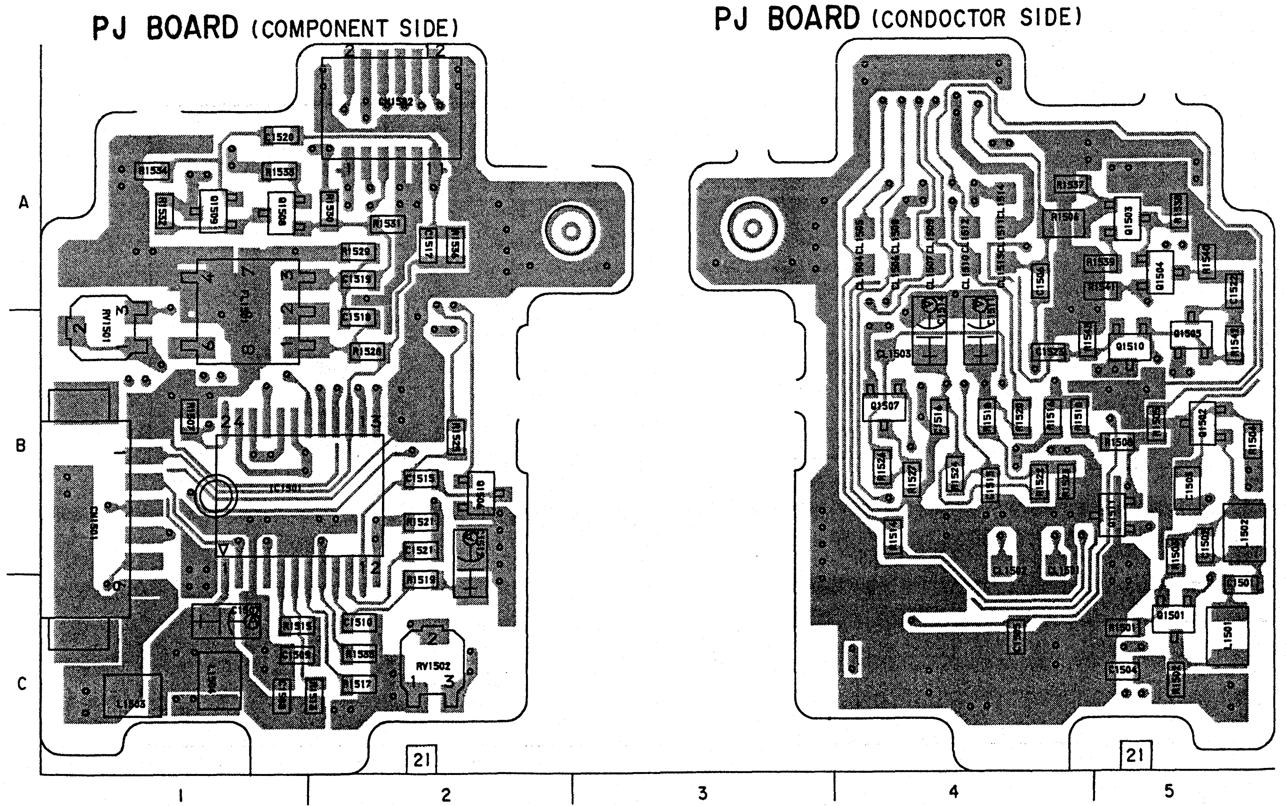

1
2
3
4
5
6
7
8
A
B
C
D
E
PJ BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
L1504 10μH
R1505 0
R1508 47k
R1510 0
R1516 100k
C1511 16V TA:A
C1513 1500p B
C1514 16V TA:A
C1516 0.01 F
R1524 91k M
Q1507 UN5113
R1526 2200
CL1503
(B-3) Q1507 SWITCH
(B-1)
IC1501
PAL JOG PROCESS
IC1501 M52358VP
Vcc
PB C IN
SEC ACK
1/2 FH
HMKC
ΘLΘP
PF
AFC LPF
HΘ OUT
C SYNC
GNΘ
V REG
I REF
C OUT
ΘL APC LPF
SQ IΘ
FSC IN
ΘL GAIN ADJ
SECAM IN
MODE
φ ADJ
CL1501
CL1502
R1515 0
C1509 110p CH
R1519 4700
C1510 1000p B
C1512 4.7 6.3V TA:A
C1521 330p B
R1521 2700
R1525 5600
C1515 390p
(B-2) Q1506 SWITCH
Q1506 UN5213
R1507 0
C1507 10 6.3V TA:A
C1508 0.01 F
C1506 0.01 B
R1514 0
C1517 0.01 (CCD-TR530E/TR550E)
R1536 0 (CCD-TR570E/TR650E/TR750E)
09
CN1502 12P (A-2)
CL1514
CL1513
CL1512
CL1511
CL1510
CL1509
CL1508
CL1507
CL1506
CL1505
CL1504
1 SS 3.6V
2 FSC
3 JOG
4 PB 4.9V
5 TH/ΘLPH AΘJ EVR
6 ΘOP
7 VIΘEO GNΘ
8 COMP SYNC
9 VIΘEO GNΘ
10 PAL JOG HΘ
11 C OUT
12 C IN
TO VS BOARΘ (2/5) CN204
(See Page 4-30)
PJ BOARD
① 0.3Vp-p H IC501 ② PB
② 1.8Vp-p H IC501 ⑪ PB
③ 0.3Vp-p H IC501 ⑮ PB

- **SIGNAL PATH**

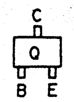
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB	⇨		

PJ (PAL JOG PROCESS) PRINTED WIRING BOARD

— Ref. No. PJ BOARD: 40000 series —


PJ BOARD (COMPONENT SIDE)
PJ BOARD (CONDOCTOR SIDE)
A
B
C
1
2
3
4
5
21
21
IC1501
RV1501
RV1502

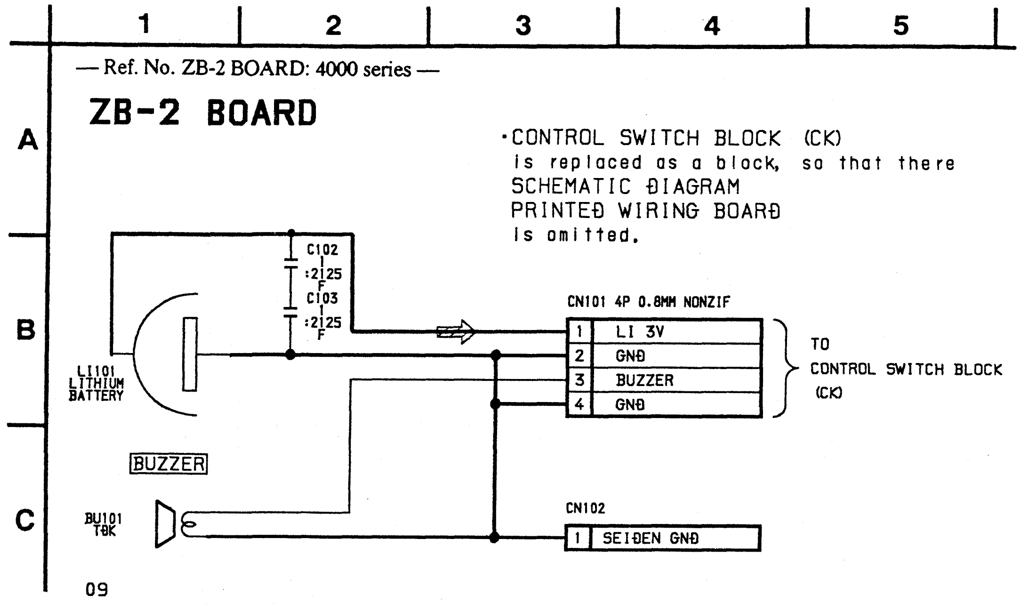
- **For printed wiring boards.**
- PJ board is a four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- Chip transistor



TR570E/TR650E/TR750E	PJ-61	1-651-918-21
TR530E/TR550E	PJ-64	1-652-139-21

ZB-2 (BUZZER/LITHIUM BATTERY) SCHEMATIC DIAGRAM

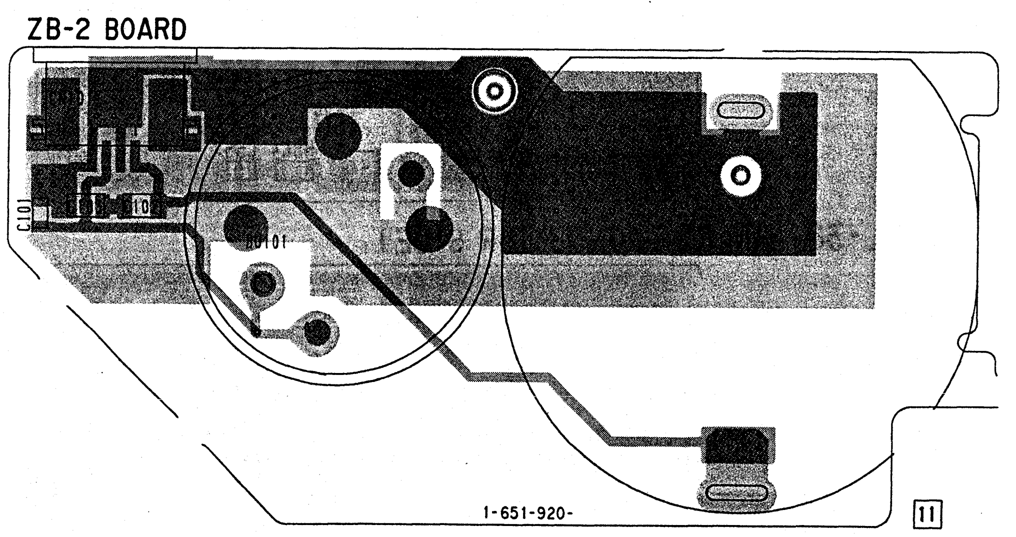
— Ref. No. ZB-2 BOARD: 4000 series —


1
2
3
4
5
A
B
C
ZB-2 BOARD
C102 :2125 F
C103 :2125 F
LI101 LITHIUM BATTERY
BUZZER
BU101 TBK
CN101 4P 0.8MM NONZIF
1 LI 3V
2 GNΘ
3 BUZZER
4 GNΘ
TO CONTROL SWITCH BLOCK (CK)
CN102
1 SEIΘEN GNΘ
09

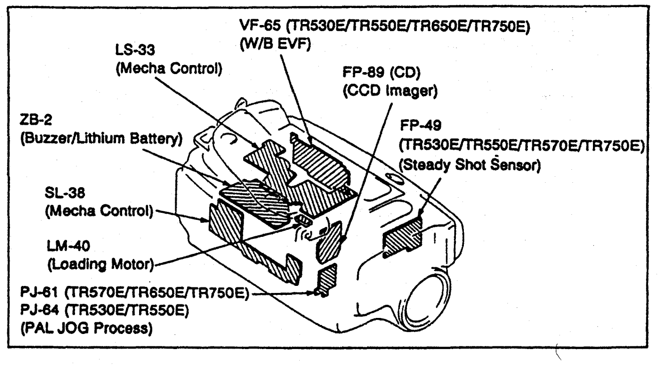
·CONTROL SWITCH BLOCK (CK)
is replaced as a block, so that there
SCHEMATIC ΘIAGRAM
PRINTEΘ WIRING BOARΘ
is omitted.

ZB-2 (BUZZER/LITHIUM BATTERY) PRINTED WIRING BOARD

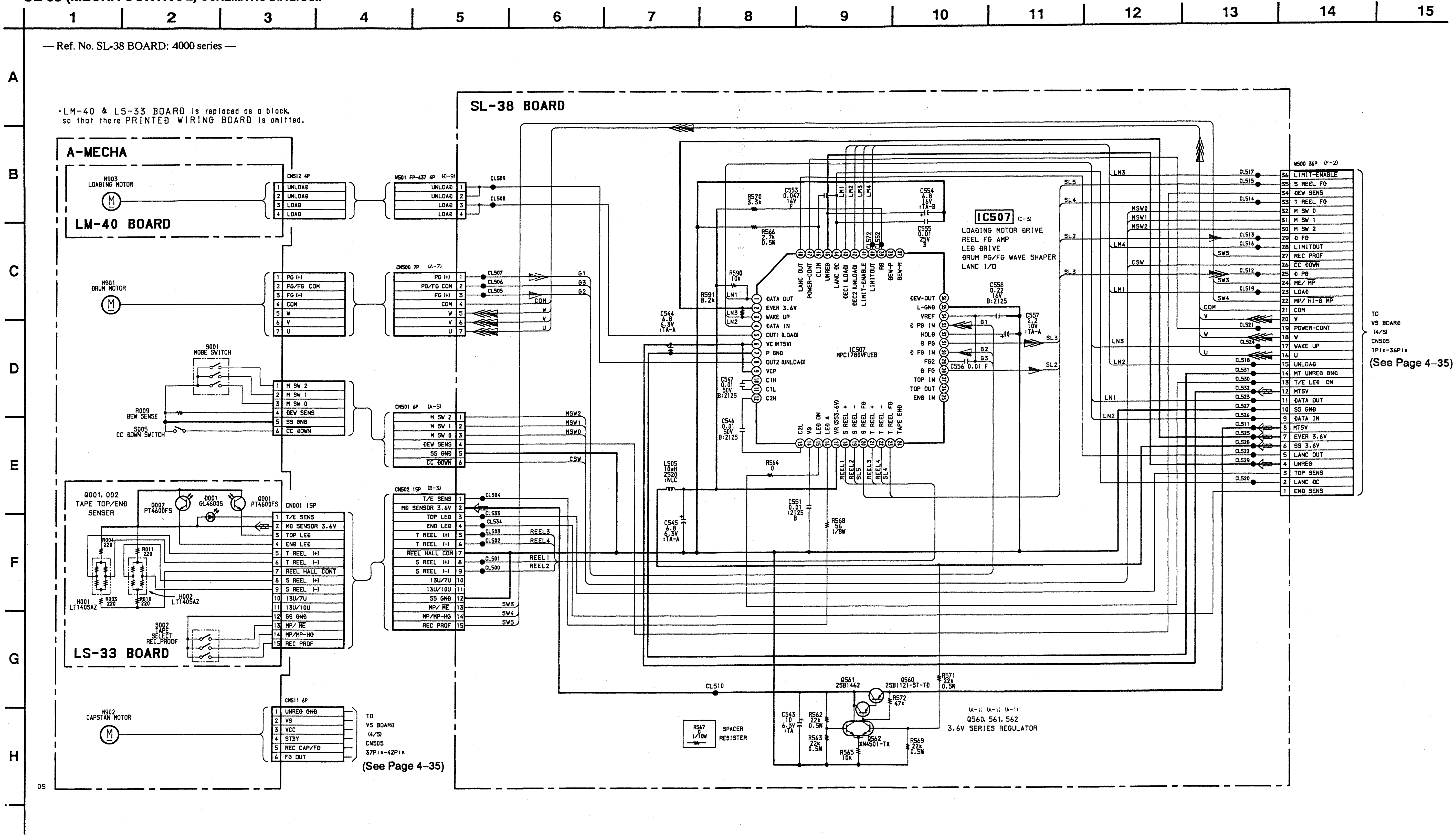
— Ref. No. ZB-2 BOARD: 4000 series —


ZB-2 BOARD
C101
BU101
1-651-920-
11

- **For printed wiring board of ZB-2 board.**
- ▓ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.


VF-65 (TR530E/TR550E/TR650E/TR750E) (W/B EVF)
LS-33 (Mecha Control)
FP-89 (CD) (CCD Imager)
ZB-2 (Buzzer/Lithium Battery)
FP-49 (TR530E/TR550E/TR570E/TR750E) (Steady Shot Sensor)
SL-38 (Mecha Control)
LM-40 (Loading Motor)
PJ-61 (TR570E/TR650E/TR750E)
PJ-64 (TR530E/TR550E)
(PAL JOG Process)

SL-38 (MECHA CONTROL) SCHEMATIC DIAGRAM



— Ref. No. SL-38 BOARD: 4000 series —

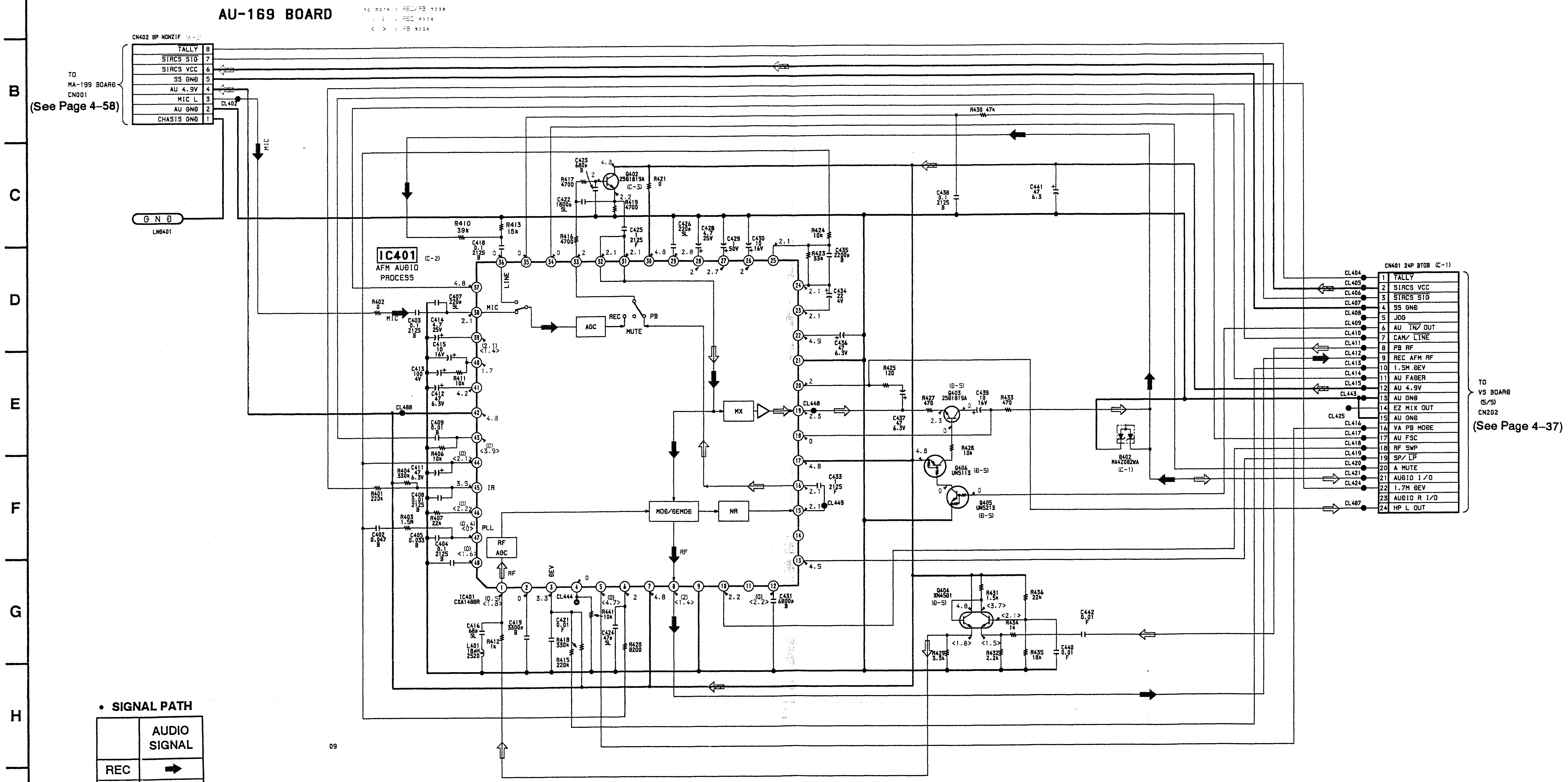
·LM-40 & LS-33 BOARD is replaced as a block, so that there PRINTED WIRING BOARD is omitted.
A-MECHA
LM-40 BOARD
LS-33 BOARD
SL-38 BOARD
M903 LOADING MOTOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
S001 MODE SWITCH
S005 CC DOWN SWITCH
R009 DEW SENSE
S002 TAPE SELECT REC_PROOF
Q001, 002 TAPE TOP/END SENSER
Q002 PT4600FS
D001 GL4600S
Q001 PT4600FS
H001 LT1405AZ
H002 LT1405AZ
CN512 4P
W501 FP-437 4P
CN500 7P
CN501 6P
CN502 15P
CN001 15P
CN511 6P
W500 36P
UNLOAD
LOAD
PG (+)
PG/FG COM
FG (+)
COM
W
V
U
M SW 2
M SW 1
M SW 0
DEW SENS
SS GND
CC DOWN
T/E SENS
MD SENSOR 3.6V
TOP LED
END LED
T REEL (+)
T REEL (-)
REEL HALL CONT
REEL HALL COM
S REEL (+)
S REEL (-)
13U/7U
13U/10U
MP/ME
MP/MP-HG
REC PROF
UNREG GND
VS
VCC
STBY
REC CAP/FG
FG OUT
TO VS BOARD (4/5) CN505 37Pin-42Pin
(See Page 4-35)
IC507
LOADING MOTOR DRIVE
REEL FG AMP
LED DRIVE
DRUM PG/FG WAVE SHAPER
LANC I/O
IC507 MPC1780VFUEB
DATA OUT
EVER 3.6V
WAKE UP
DATA IN
OUT1 (LOAD)
VC (MTSV)
P GND
OUT2 (UNLOAD)
VCP
C1H
C1L
C2H
DEW-OUT
L-GND
VREF
D PG IN
HOLD
D PG
D FG IN
FG2
D FG
TOP IN
TOP OUT
END IN
LANC OUT
POWER-CONT
CLIM
UNREG
LANC DC
DEC1 (LOAD)
DEC2 (UNLOAD)
LIMIT-ENABLE
LIMITOUT
RS
DEW-P
DEW-M
C2L
VD
LED ON
LED A
VR (SS3.6V)
S REEL +
S REEL -
S REEL FG
T REEL +
T REEL -
T REEL FG
TAPE END
LIMIT-ENABLE
S REEL FG
DEW SENS
T REEL FG
M SW 0
M SW 1
M SW 2
D FG
LIMITOUT
REC PROF
CC DOWN
D PG
ME/MP
LOAD
MP/HI-8 MP
COM
POWER-CONT
WAKE UP
UNLOAD
MT UNREG GND
T/E LED ON
MTSV
DATA OUT
SS GND
DATA IN
EVER 3.6V
SS 3.6V
LANC OUT
UNREG
TOP SENS
LANC DC
END SENS
TO VS BOARD (4/5) CN505 1Pin-36Pin
(See Page 4-35)
R570 3.3k
C553 0.047 16V
C554 6.8 16V :TA-B
C555 0.01 25V B
R566 2.7k 0.5W
R590 10k
R591 8.2k
C544 6.8 6.3V :TA-A
C558 0.22 16V B:2125
C557 2.2 10V :TA-A
C556 0.01 F
C547 0.01 50V B:2125
C546 0.01 50V B:2125
L505 10µH 2520 :NLC
C545 6.8 6.3V :TA-A
R564 0
C551 0.01 :2125 B
R568 56 1/8W
Q561 2SB1462
Q560 2SB1121-ST-TD
R571 22k 0.5W
R572 47k
C543 10 6.3V :TA
R562 22k 0.5W
R563 22k 0.5W
Q562 XN4501-TX
R565 10k
R569 22k 0.5W
R567 0 1/10W SPACER RESISTER
(A-1) (A-1) (A-1) Q560, 561, 562 3.6V SERIES REGULATOR
SL2 SL3 SL4 SL5
LM1 LM2 LM3 LM4
LN1 LN2 LN3
MSW0 MSW1 MSW2
SW3 SW4 SW5
CSW
REEL1 REEL2 REEL3 REEL4
G1 G2 G3
CL510
09
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	

AU-169 (MONO AUDIO) SCHEMATIC DIAGRAM (TR530E/TR550E)

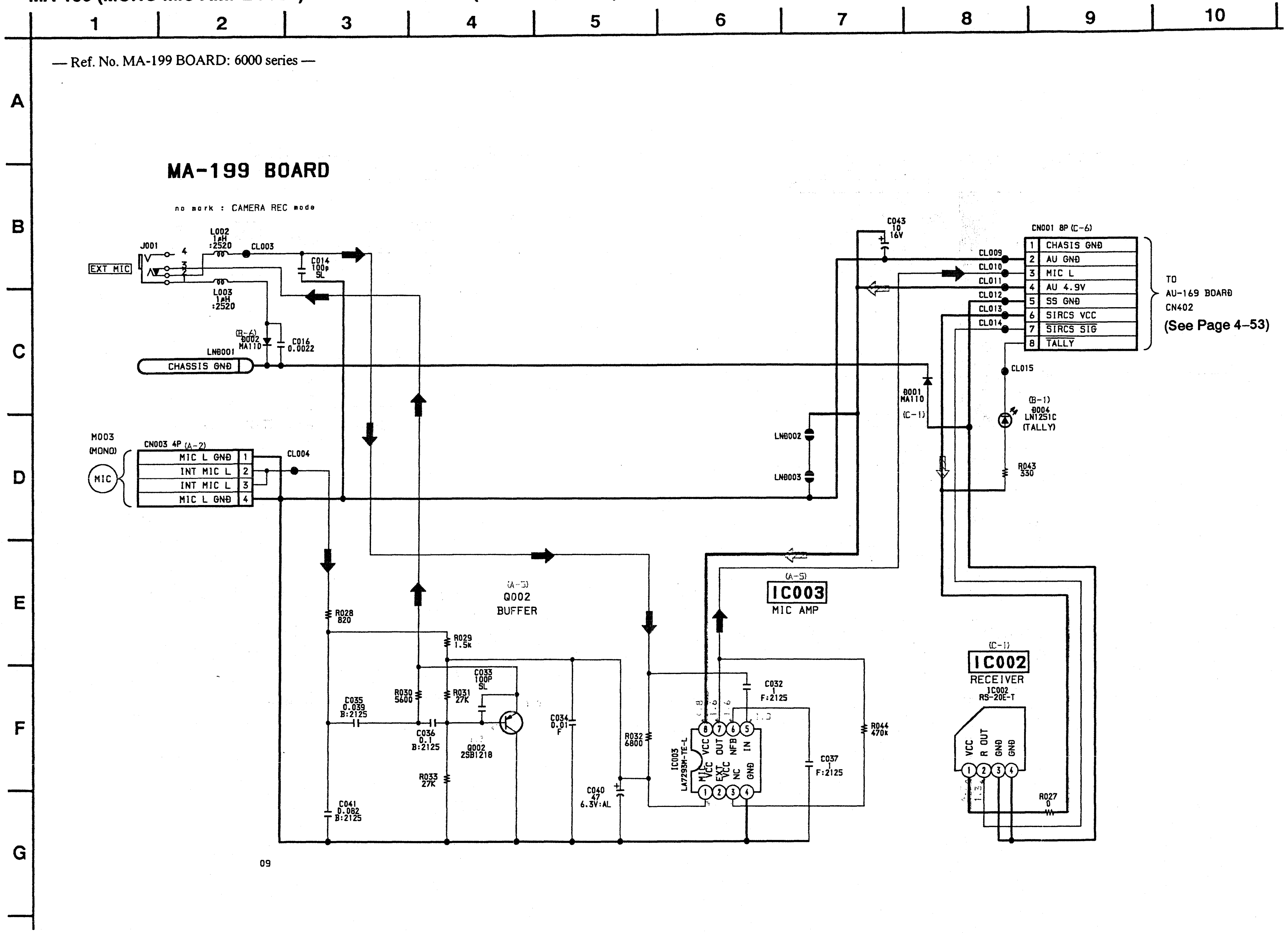
— Ref. No. AU-169 BOARD: 5000 series —


AU-169 BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
CN402 8P NONZIF (A-2)
TALLY 8
SIRCS SIG 7
SIRCS VCC 6
SS GND 5
AU 4.9V 4
MIC L 3
AU GND 2
CHASIS GND 1
TO
MA-199 BOARD
CN001
(See Page 4-58)
CL402
MIC
G N D
LN8401
IC401 (C-2)
AFM AUDIO
PROCESS
IC401
CXA1486R
LINE
MIC
AGC
REC
PB
MUTE
MX
MOD/DEMOD
NR
RF
AGC
RF
PLL
IR
DEV
Q402 2SB1819A (C-3)
Q403 2SB1819A
Q404 XN4501
Q405 UN5213
Q406 UN5113
D402 MA4Z082WA (C-1)
R430 47k
C438 0.1 2125 B
C441 47 6.3
L401 18μH 2520
CN401 24P BTOB (C-1)
CL404
CL405
CL406
CL407
CL408
CL409
CL410
CL411
CL412
CL413
CL414
CL415
CL443
CL425
CL416
CL417
CL418
CL419
CL420
CL421
CL424
CL487
1 TALLY
2 SIRCS VCC
3 SIRCS SIG
4 SS GND
5 JOG
6 AU IN/ OUT
7 CAM/ LINE
8 PB RF
9 REC AFM RF
10 1.5M DEV
11 AU FADER
12 AU 4.9V
13 AU GND
14 EZ MIX OUT
15 AU GND
16 VA PB MODE
17 AU FSC
18 RF SWP
19 SP/ LP
20 A MUTE
21 AUDIO I/O
22 1.7M DEV
23 AUDIO R I/O
24 HP L OUT
TO
VS BOARD
(5/5)
CN202
(See Page 4-37)
09

- SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	⇨

MA-199 (MONO MIC AMPLIFIER) SCHEMATIC DIAGRAM (TR530E/TR550E)



— Ref. No. MA-199 BOARD: 6000 series —

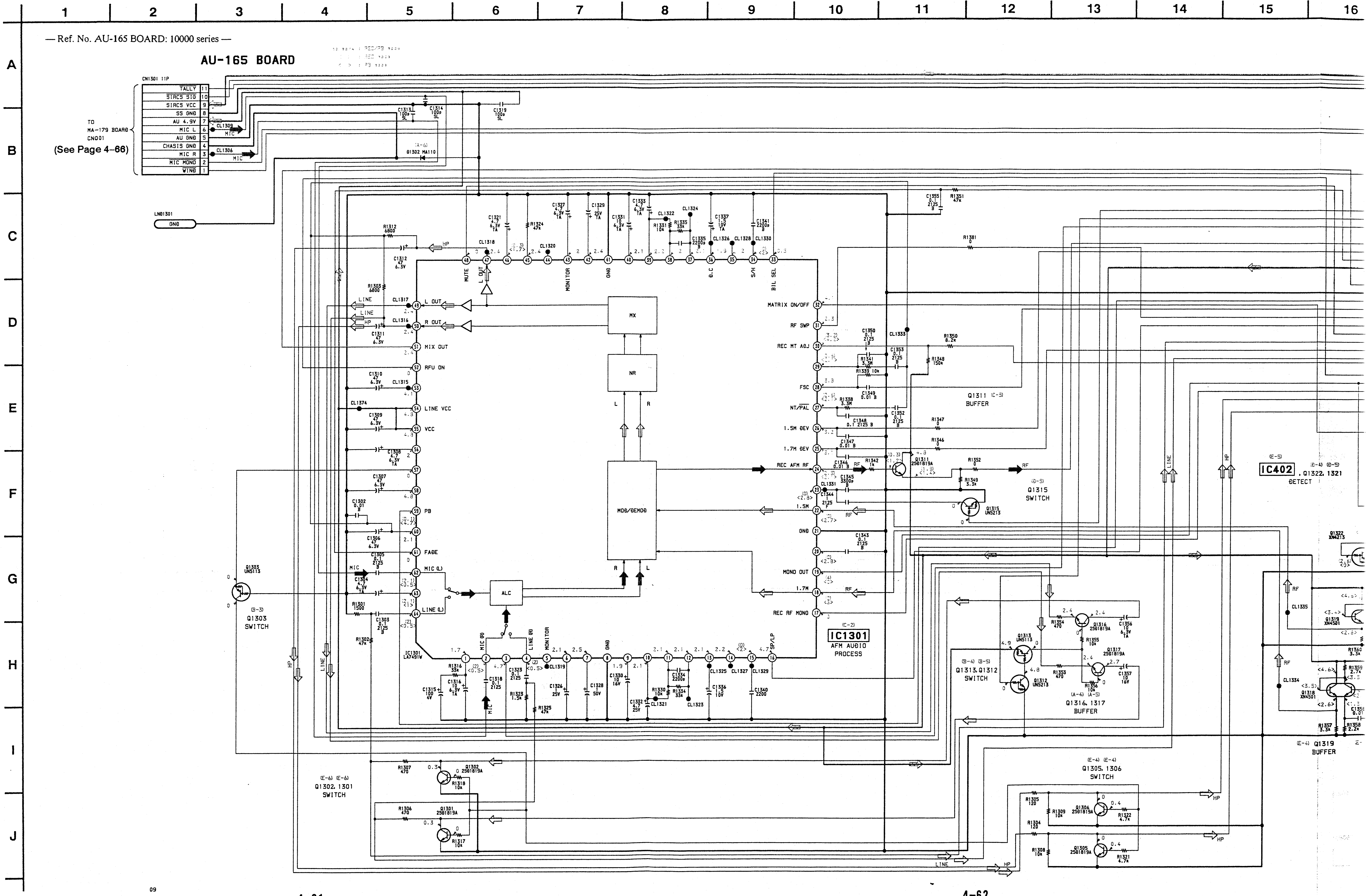
1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
MA-199 BOARD
no mark : CAMERA REC mode
EXT MIC
J001
L002
1μH
:2520
CL003
C014
100p
SL
L003
1μH
:2520
(B-6)
D002
MA110
C016
0.0022
LND001
CHASSIS GND
M003
(MONO)
MIC
CN003 4P (A-2)
MIC L GND 1
INT MIC L 2
INT MIC L 3
MIC L GND 4
CL004
C043
10
16V
CN001 8P (C-6)
1 CHASIS GND
2 AU GND
3 MIC L
4 AU 4.9V
5 SS GND
6 SIRCS VCC
7 SIRCS SIG
8 TALLY
CL009
CL010
CL011
CL012
CL013
CL014
TO
AU-169 BOARD
CN402
(See Page 4-53)
CL015
D001
MA110
(C-1)
(B-1)
D004
LN1251C
(TALLY)
LND002
LND003
R043
330
(A-5)
Q002
BUFFER
(A-5)
IC003
MIC AMP
R028
820
R029
1.5k
C033
100P
SL
R030
5600
R031
27K
C035
0.039
B:2125
C036
0.1
B:2125
Q002
2SB1218
R033
27K
C034
0.01
F
C040
47
6.3V:AL
C041
0.082
B:2125
R032
6800
IC003
LA7293M-TE-L
VCC
OUT
NFB
IN
MIC VCC
EXT VCC
NC
GND
C032
1
F:2125
C037
1
F:2125
R044
470k
(C-1)
IC002
RECEIVER
IC002
RS-20E-T
VCC
R OUT
GND
GND
R027
0
09

- **SIGNAL PATH**

	AUDIO SIGNAL
REC	➡
PB	

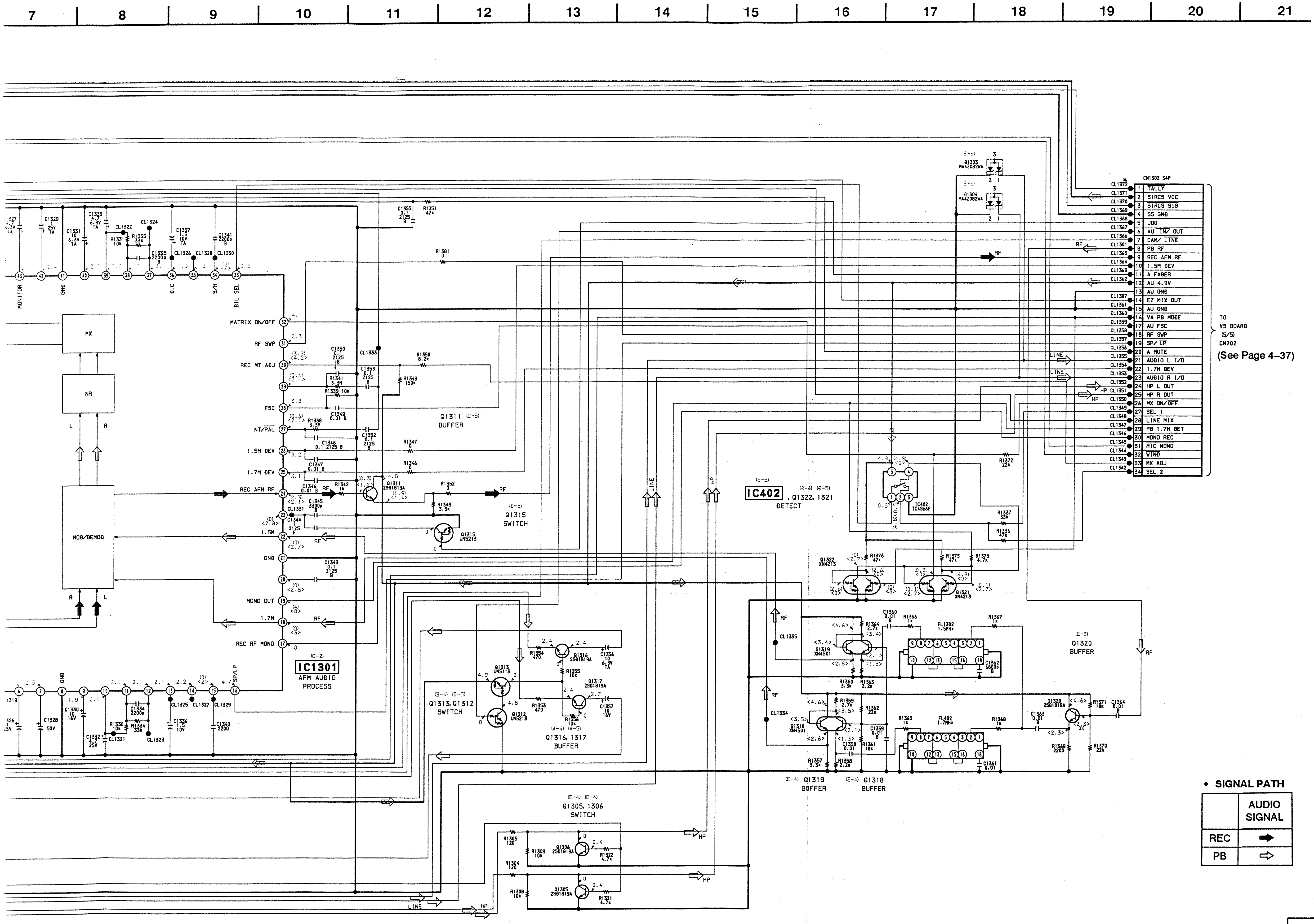
AU-165 (STEREO AUDIO) SCHEMATIC DIAGRAM (TR570E/TR650E/TR750E)

— Ref. No. AU-165 BOARD: 10000 series —



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
AU-165 BOARD
CN1301 11P
TALLY 11
SIRCS SIG 10
SIRCS VCC 9
SS GND 8
AU 4.9V 7
MIC L 6
AU GND 5
CHASIS GND 4
MIC R 3
MIC MONO 2
WIND 1
TO MA-179 BOARD CN001
(See Page 4-66)
CL1309
CL1306
MIC
C1313 100p SL
C1314 100p SL
C1319 100p SL
D1302 MA110
LN01301 GND
R1312 6800
C1312 47 6.3V
R1303 6800
CL1317
CL1316
C1311 47 6.3V
C1310 47 6.3V
CL1315
CL1374
C1309 47 6.3V
C1308 4.7 6.3V TA
C1307 47 6.3V
C1302 0.01 B
C1306 47 6.3V
C1305 0.1 2125 B
C1304 4.7 6.3V TA
R1301 1500
C1303 0.1 2125 B
R1302 47k
Q1303 UN5113
Q1303 SWITCH
C1321 4.7 6.3V TA
R1324 47k
CL1318
CL1320
C1327 4.7 6.3V TA
C1329 1 25V TA
C1331 10 6.3V TA
C1333 4.7 6.3V TA
CL1322
R1331 10k
R1335 33k
CL1324
C1335 2200p B
C1337 1.5 10V TA
CL1326
C1341 2200p B
CL1328
CL1330
MUTE
L OUT
MONITOR
GND
B.C
S/H
BIL SEL
L OUT
R OUT
MIX OUT
RFU ON
LINE VCC
VCC
PB
FADE
MIC (L)
LINE (L)
LINE
HP
MX
NR
MOD/DEMOD
ALC
L
R
MATRIX ON/OFF
RF SWP
REC MT ADJ
FSC
NT/PAL
1.5M DEV
1.7M DEV
REC AFM RF
1.5M
GND
MONO OUT
1.7M
REC RF MONO
IC1301 LA7491W
IC1301 AFM AUDIO PROCESS
MIC (R)
LINE (R)
SP/LP
R1316 33k
C1316 10 6.3V TA
C1315 100 4V
C1318 0.1 2125
C1323 0.1 2125
CL1319
R1323 1.5k
R1325 47k
C1326 1 25V
C1328 1 50V
C1330 10 16V
C1332 4.7 25V
CL1321
R1330 10k
R1334 33k
C1334 2200p
CL1323
CL1325
CL1327
C1336 1.5 10V
CL1329
C1340 2200
C1350 0.1 2125 B
CL1333
R1341 3.3M
R1339 10k
C1353 0.1 2125 B
R1348 150k
R1350 8.2k
C1349 0.01 B
R1338 3.3M
C1352 0.1 2125 B
C1348 0.1 2125 B
C1347 0.01 B
C1346 0.01 B
R1342 1k
C1345 3300p B
CL1331
C1344 2125
C1343 0.1 2125 B
C1355 0.1 2125 B
R1351 47k
R1381 0
Q1311 BUFFER
R1347 0
R1346 0
Q1311 2SD1819A
R1352 0
R1349 3.3k
Q1315 SWITCH
Q1315 UN5213
RF
IC402
Q1322, 1321 DETECT
Q1322 XN4213
Q1313, Q1312 SWITCH
Q1313 UN5113
Q1312 UN5213
R1354 470
Q1316 2SD1819A
C1356 10 6.3V TA
R1355 10k
Q1317 2SD1819A
R1353 470
R1356 10k
C1357 10 16V
Q1316, 1317 BUFFER
CL1335
Q1319 XN4501
Q1318 XN4501
CL1334
R1360 3.3k
R1359 2.7k
R1357 3.3k
R1358 2.2k
Q1319 BUFFER
Q1305, 1306 SWITCH
R1305 120
R1309 10k
Q1306 2SD1819A
R1322 4.7k
R1304 120
R1308 10k
Q1305 2SD1819A
R1321 4.7k
R1307 470
Q1302 2SD1819A
R1318 10k
Q1302, 1301 SWITCH
R1306 470
Q1301 2SD1819A
R1317 10k

09


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
IC1301
AFM AUDIO PROCESS
MX
NR
MOD/DEMOD
MONITOR
GND
D.C
S/H
BIL SEL
MATRIX ON/OFF
RF SWP
REC MT ADJ
FSC
NT/PAL
1.5M DEV
1.7M DEV
REC AFM RF
1.5M
GND
MONO OUT
1.7M
REC RF MONO
SP/LP
Q1311 BUFFER
Q1315 SWITCH
Q1313,Q1312 SWITCH
Q1316,1317 BUFFER
Q1305,1306 SWITCH
IC402
Q1322,1321 DETECT
Q1319 BUFFER
Q1318 BUFFER
Q1320 BUFFER
FL1302 1.5MHz
FL402 1.7MHz
Q1303 MA4Z082WA
Q1304 MA4Z082WA
CN1302 34P
1 TALLY
2 SIRCS VCC
3 SIRCS SIG
4 SS GND
5 JOG
6 AU IN/ OUT
7 CAM/ LINE
8 PB RF
9 REC AFM RF
10 1.5M DEV
11 A FADER
12 AU 4.9V
13 AU GND
14 EZ MIX OUT
15 AU GND
16 VA PB MODE
17 AU FSC
18 RF SWP
19 SP/ LP
20 A MUTE
21 AUDIO L I/O
22 1.7M DEV
23 AUDIO R I/O
24 HP L OUT
25 HP R OUT
26 MX ON/OFF
27 SEL 1
28 LINE MIX
29 PB 1.7M DET
30 MONO REC
31 MIC MONO
32 WIND
33 MX ADJ
34 SEL 2
TO VS BOARD (5/5) CN202
(See Page 4-37)
RF
LINE
HP

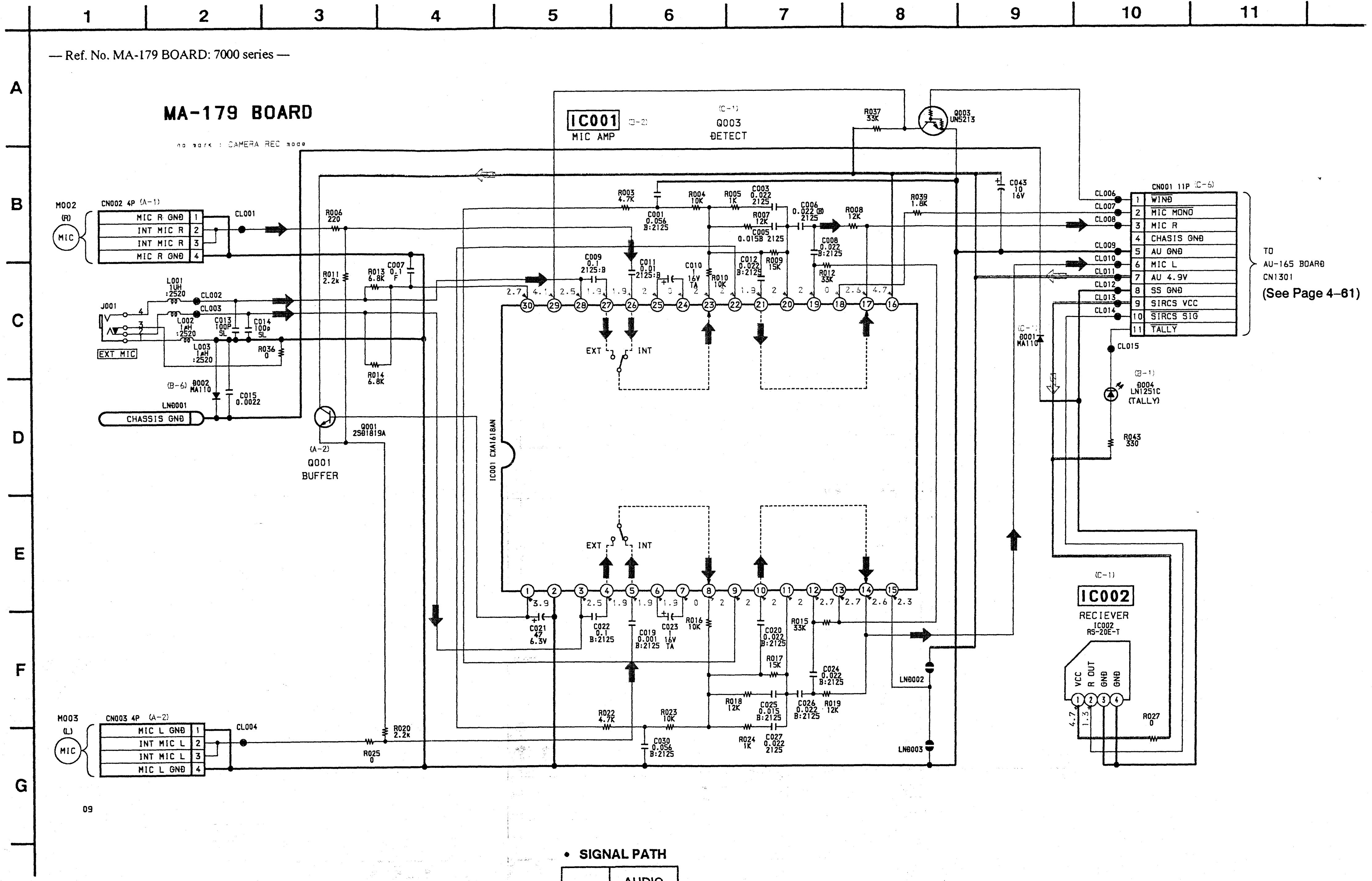
• SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	⇨

AUDIO (STEREO)

MA-179 (STEREO MIC AMPLIFIER) SCHEMATIC DIAGRAM (TR570E/TR650E/TR750E)

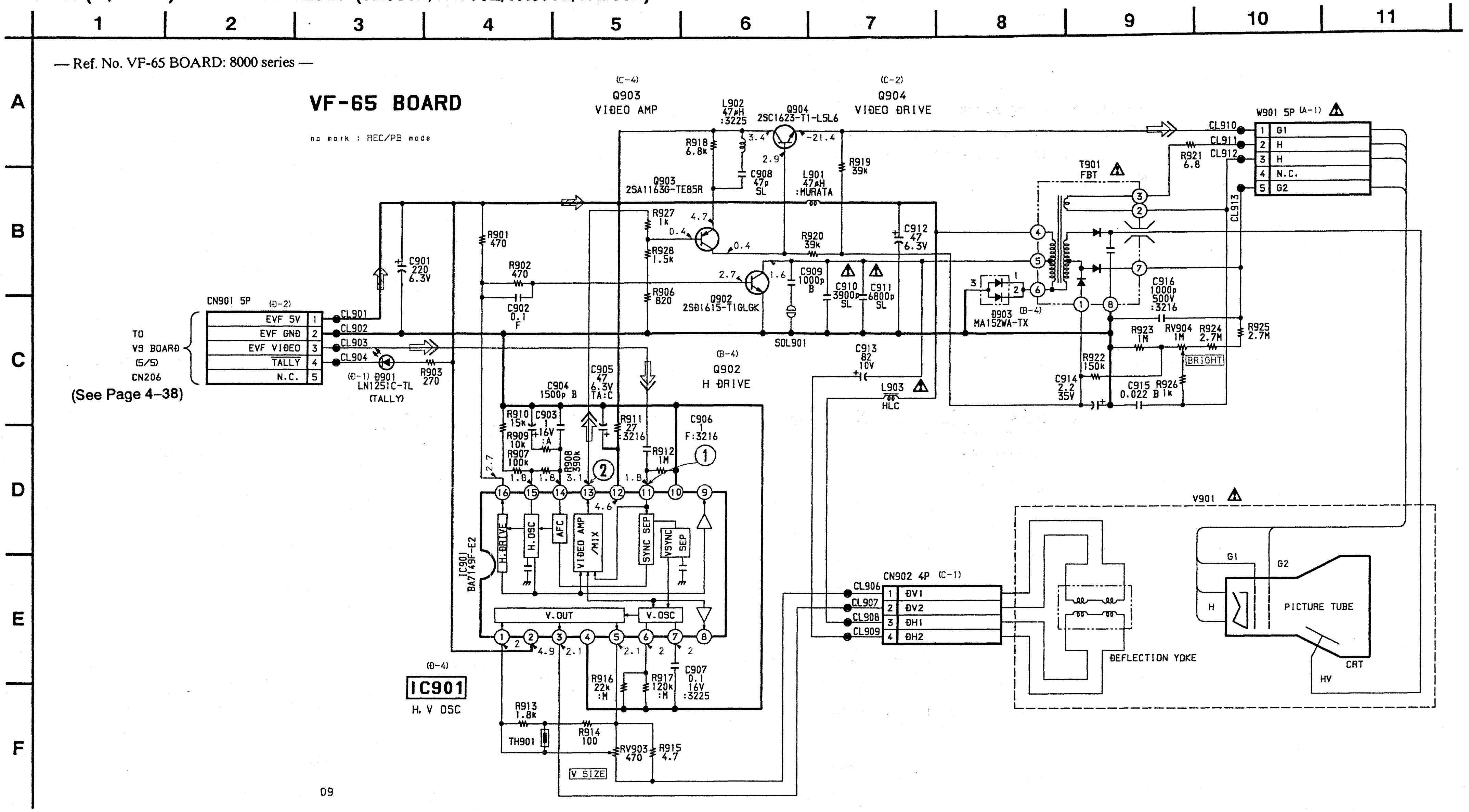
— Ref. No. MA-179 BOARD: 7000 series —

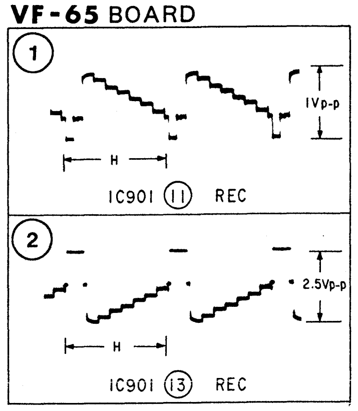

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
MA-179 BOARD
IC001
MIC AMP
Q003
DETECT
Q003
UN5213
R037
33K
M002
(R)
MIC
CN002 4P
MIC R GND
INT MIC R
INT MIC R
MIC R GND
CL001
J001
EXT MIC
L001
L002
L003
CL002
CL003
C013
C014
C015
0.0022
D002
MA110
R036
LN0001
CHASSIS GND
R006
220
R011
2.2k
R013
6.8K
C007
R014
6.8K
Q001
2SB1819A
Q001
BUFFER
IC001 CXA1618AN
EXT
INT
C009
C011
C010
C001
0.056
R003
4.7K
R004
10K
R005
1K
C003
0.022
R007
12K
C005
0.015
C006
C008
R008
12K
R009
15K
R010
10K
R012
33K
C012
R039
1.8K
C043
10
16V
D001
MA110
CN001 11P
WIND
MIC MONO
MIC R
CHASSIS GND
AU GND
MIC L
AU 4.9V
SS GND
SIRCS VCC
SIRCS SIG
TALLY
CL006
CL007
CL008
CL009
CL010
CL011
CL012
CL013
CL014
CL015
TO
AU-165 BOARD
CN1301
(See Page 4-61)
D004
LN1251C
(TALLY)
R043
330
IC002
RECIEVER
IC002
RS-20E-T
VCC
R OUT
GND
GND
R027
0
C021
47
6.3V
C022
0.1
C019
0.001
C023
R016
10K
C020
0.022
R015
33K
R017
15K
C024
0.022
R018
12K
C025
0.015
C026
0.022
R019
12K
R022
4.7K
R023
10K
R024
1K
C027
0.022
C030
0.056
LN0002
LN0003
M003
(L)
MIC
CN003 4P
MIC L GND
INT MIC L
INT MIC L
MIC L GND
CL004
R020
2.2k
R025
0
09

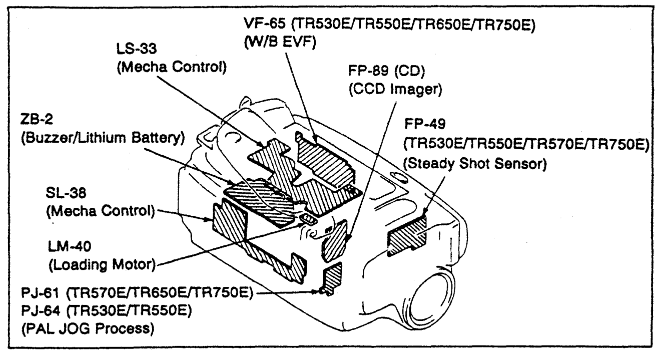
• **SIGNAL PATH**

	AUDIO SIGNAL
REC	➡
PB	

VF-65 (W/B EVF) SCHEMATIC DIAGRAM (TR530E/TR550E/TR650E/TR750E)


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
— Ref. No. VF-65 BOARD: 8000 series —
VF-65 BOARD
no mark : REC/PB mode
(C-4) Q903 VIDEO AMP
(C-2) Q904 VIDEO DRIVE
L902 47μH :3225
Q904 2SC1623-T1-L5L6
R918 6.8k
Q903 2SA1163G-TE85R
C908 47p SL
L901 47μH :MURATA
R919 39k
R927 1k
R928 1.5k
R906 820
R920 39k
C909 1000p B
C910 3900p SL
C911 6800p SL
C912 47 6.3V
Q902 2SB1615-T1GLGK
SOL901
R901 470
R902 470
C901 220 6.3V
C902 0.1 F
CN901 5P (D-2)
EVF 5V
EVF GND
EVF VIDEO
TALLY
N.C.
CL901
CL902
CL903
CL904
TO VS BOARD (5/5) CN206
(See Page 4-38)
(E-1) D901 LN1251C-TL (TALLY)
R903 270
C904 1500p B
C905 47 6.3V TA:C
(B-4) Q902 H DRIVE
C913 82 10V
L903 HLC
R910 15k
C903 1 16V :A
R909 10k
R907 100k
R908 390k
R911 27 :3216
R912 1M
C906 1 F:3216
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
IC901 BA7143F-E2
(D-4) IC901 H, V OSC
R916 22k :M
R917 120k :M
C907 0.1 16V :3225
R913 1.8k
TH901
R914 100
RV903 470
R915 4.7
V SIZE
T901 FBT
D903 (B-4) MA152WA-TX
C916 1000p 500V :3216
R923 1M
RV904 1M
R924 2.7M
R925 2.7M
BRIGHT
R922 150k
C914 2.2 35V
C915 0.022 B
R926 1k
W901 5P (A-1)
CL910
CL911
CL912
CL913
R921 6.8
G1
H
N.C.
G2
V901
CN902 4P (C-1)
CL906
CL907
CL908
CL909
DV1
DV2
DH1
DH2
DEFLECTION YOKE
PICTURE TUBE
CRT
HV
09




VF-65 (TR530E/TR550E/TR650E/TR750E) (W/B EVF)
LS-33 (Mecha Control)
FP-89 (CD) (CCD Imager)
ZB-2 (Buzzer/Lithium Battery)
FP-49 (TR530E/TR550E/TR570E/TR750E) (Steady Shot Sensor)
SL-38 (Mecha Control)
LM-40 (Loading Motor)
PJ-61 (TR570E/TR650E/TR750E)
PJ-64 (TR530E/TR550E)
(PAL JOG Process)

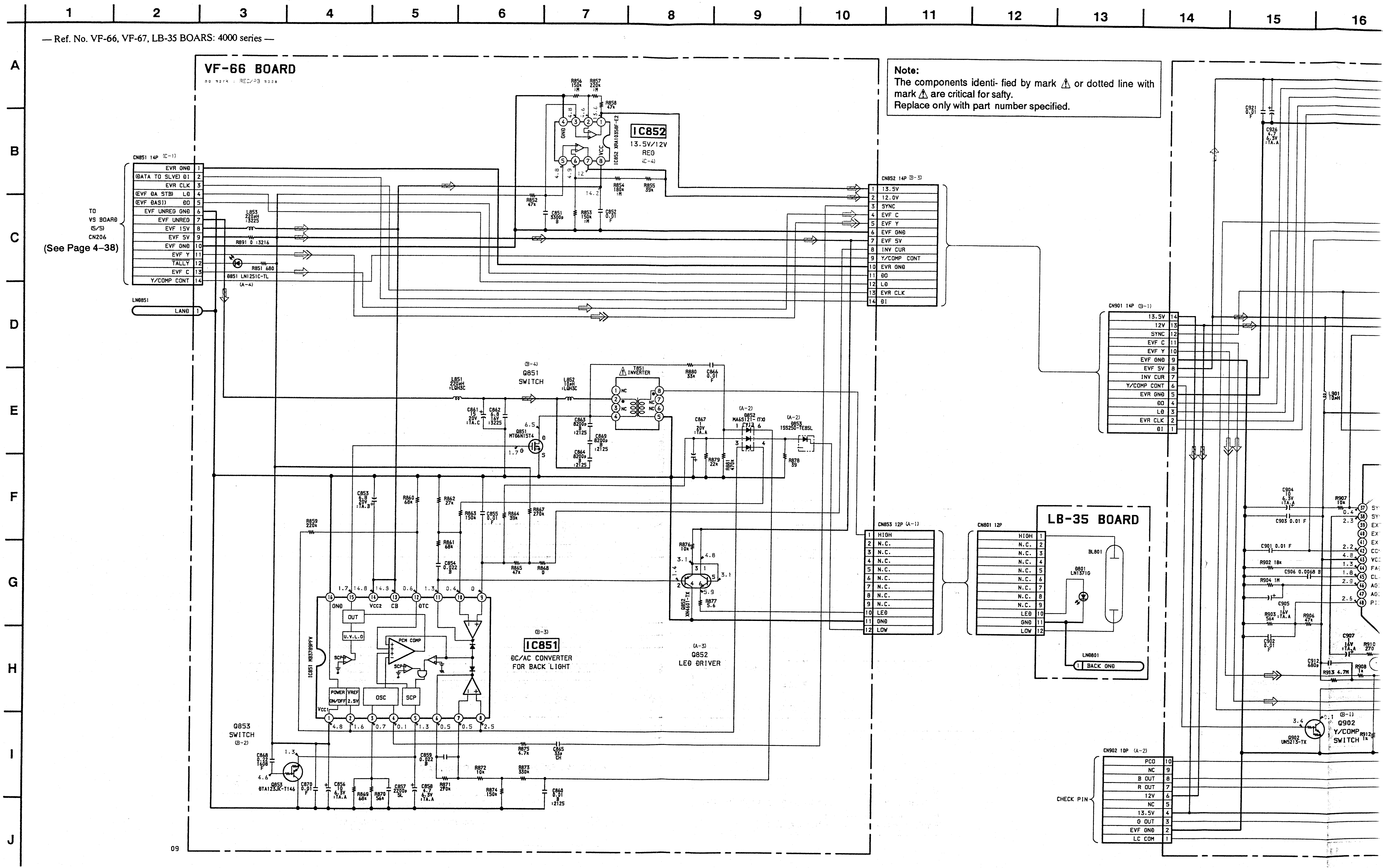
- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB		⇨	

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

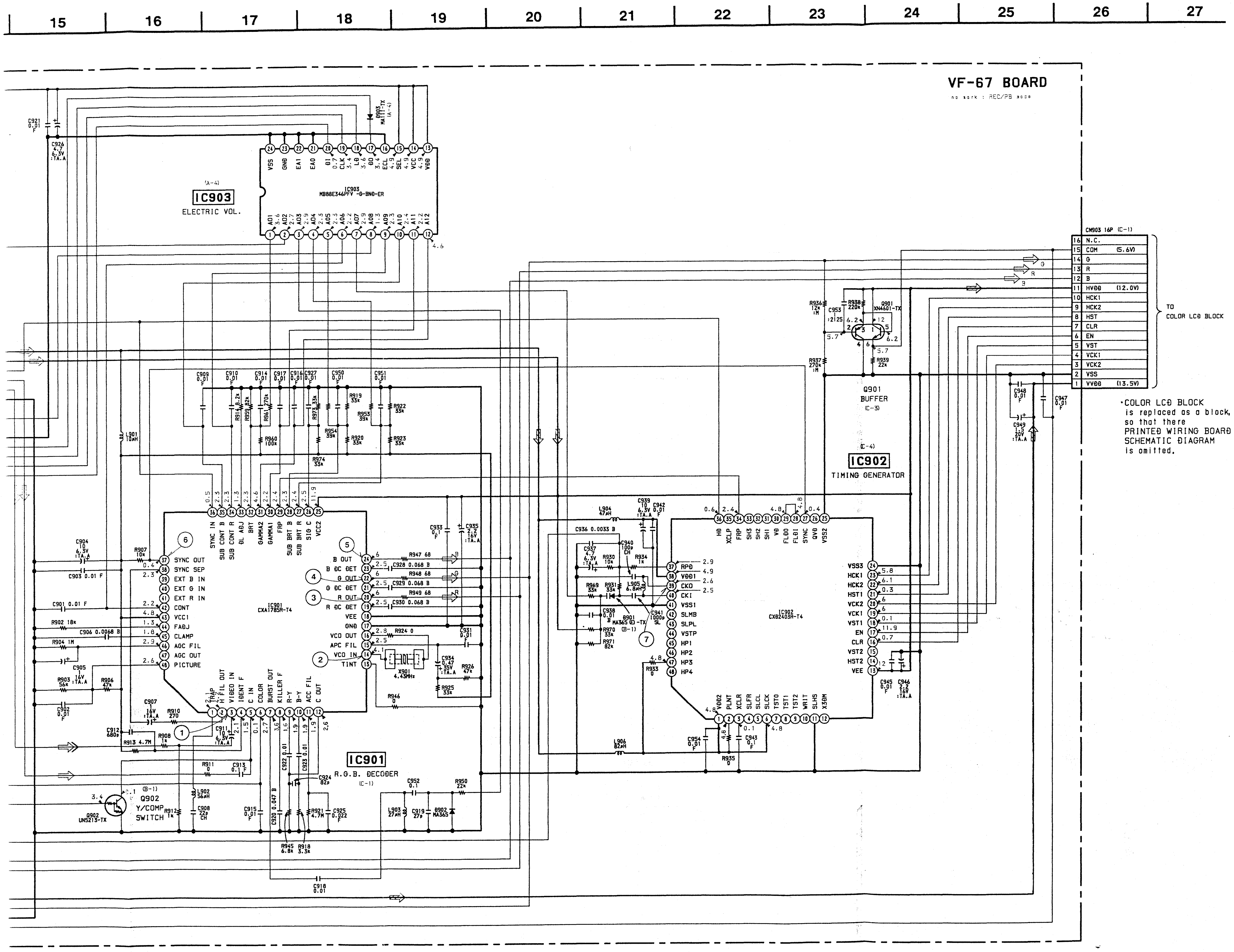
VF-66 (COLOR EVF), VF-67 (COLOR EVF), LB-35 (BACK LIGHT) SCHEMATIC DIAGRAM (TR570E)

— Ref. No. VF-66, VF-67, LB-35 BOARS: 4000 series —

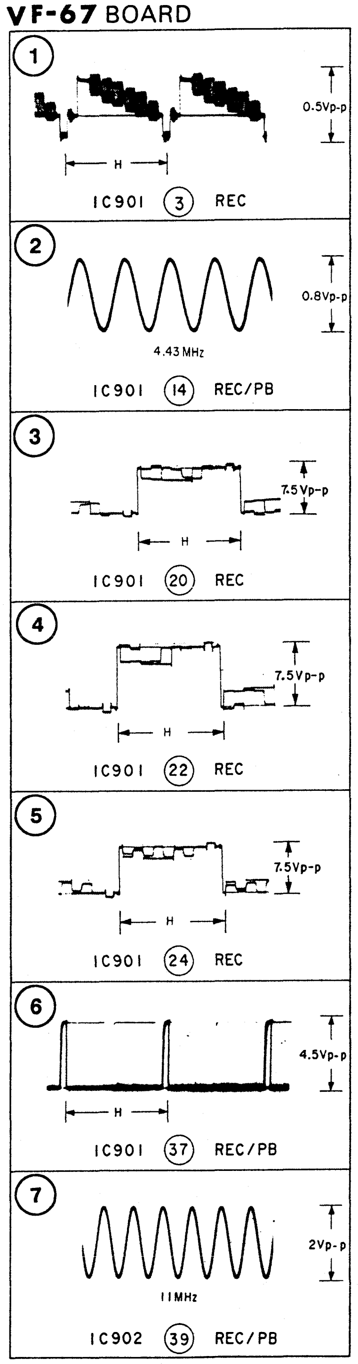


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
VF-66 BOARD
no mark : REC/PB mode
TO VS BOARD (S/S) CN206
(See Page 4-38)
CN851 14P (C-1)
EVR GND 1
(DATA TO SLVE) DI 2
EVR CLK 3
(EVF DA STB) LD 4
(EVF DASI) DO 5
EVF UNREG GND 6
EVF UNREG 7
EVF 15V 8
EVF 5V 9
EVF GND 10
EVF Y 11
TALLY 12
EVF C 13
Y/COMP CONT 14
LN0851
LAND 1
IC852
13.5V/12V REG
(C-4)
IC852 XRA10356F-E2
R856 150k
R857 220k
R858 47k
R852 47k
C851 3300p
R853 150k
C852 0.01
R854 180k
R855 39k
L853 220μH
R891 0 :3216
D851 LN1251C-TL
R851 680
CN852 14P (B-3)
1 13.5V
2 12.0V
3 SYNC
4 EVF C
5 EVF Y
6 EVF GND
7 EVF 5V
8 INV CUR
9 Y/COMP CONT
10 EVR GND
11 DO
12 LD
13 EVR CLK
14 DI
L851 220μH
Q851 SWITCH
(B-4)
Q851 MTG6N15T4
L852 10μH
T851 INVERTER
R880 33k
C866 0.01
C861 15 20V
C862 6.8 16V
C863 8200p
C869 8200p
C864 8200p
C867 20V
D852 MA6S121-(TX)
D853 1SS250-TE85L
R879 22k
R878 39
C853 6.8 20V
R860 68k
R862 27k
R859 220k
R863 150k
C855 0.01
R864 39k
R867 270k
R861 68k
C854 0.022
R865 47k
R868 0
R876 10k
R877 5.6
Q852 XN4401-TX
IC851 MB3789PFV
IC851
DC/AC CONVERTER FOR BACK LIGHT
(B-3)
GND VCC2 CB DTC
OUT
U.V.L.O
PCM COMP
SCP
POWER ON/OFF
VREF 2.5V
OSC
VCC1
Q852 LED DRIVER
(A-3)
Q853 SWITCH
(B-2)
Q853 DTA123JK-T146
C868 0.22
C870 0.01
C856 10 6.3V
R869 68k
R870 56k
C857 2200p
C858 4.7 6.3V
R871 270k
C859 0.022
R872 10k
R874 150k
R875 4.7k
R873 330k
C865 33p
C860 0.01
CN853 12P (A-1)
1 HIGH
2 N.C.
3 N.C.
4 N.C.
5 N.C.
6 N.C.
7 N.C.
8 N.C.
9 N.C.
10 LED
11 GND
12 LOW
CN801 12P
HIGH 1
N.C. 2
N.C. 3
N.C. 4
N.C. 5
N.C. 6
N.C. 7
N.C. 8
N.C. 9
LED 10
GND 11
LOW 12
LB-35 BOARD
BL801
D801 LN1371G
LN0801
BACK GND 1
C921 0.01
C926 4.7 6.3V
CN901 14P (B-1)
13.5V 14
12V 13
SYNC 12
EVF C 11
EVF Y 10
EVF GND 9
EVF 5V 8
INV CUR 7
Y/COMP CONT 6
EVR GND 5
DO 4
LD 3
EVR CLK 2
DI 1
L901 10μH
C904 10 6.3V
C903 0.01
R907 10k
C901 0.01
R902 18k
C906 0.0068
R904 1M
C905 16V
R903 56k
R906 47k
C902 0.01
C907 16V
R910 270
C912 680p
R913 4.7M
R908 1k
Q902 Y/COMP SWITCH
(B-1)
Q902 UN5213-TX
R912 1k
CN902 10P (A-2)
CHECK PIN
PCO 10
NC 9
B OUT 8
R OUT 7
12V 6
NC 5
13.5V 4
G OUT 3
EVF GND 2
LC COM 1
09

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.


15
16
17
18
19
20
21
22
23
24
25
26
27
VF-67 BOARD
no mark : REC/PB mode
IC903
ELECTRIC VOL.
IC903 MB88E346PFV -G-BND-ER
IC901
R.G.B. DECODER
IC901 CXA1785R-T4
IC902
TIMING GENERATOR
IC902 CXD2403R-T4
Q901 BUFFER
Q901 XN4601-TX
Q902 Y/COMP SWITCH
Q902 UN5213-TX
X901 4.43MHz
CN903 16P
N.C.
COM (5.6V)
G
R
B
HVDD (12.0V)
HCK1
HCK2
HST
CLR
EN
VST
VCK1
VCK2
VSS
VVDD (13.5V)
TO COLOR LCD BLOCK
SYNC OUT
SYNC SEP
EXT B IN
EXT G IN
EXT R IN
CONT
VCC1
FADJ
CLAMP
AGC FIL
AGC OUT
PICTURE
B OUT
B DC DET
G OUT
G DC DET
R OUT
R DC DET
VEE
GND
VCO OUT
APC FIL
VCO IN
TINT
RPD
VDD1
CKO
CKI
VSS1
SLMB
SLPL
VSTP
HP1
HP2
HP3
HP4
VSS3
HCK1
HCK2
HST1
VCK2
VCK1
VST1
EN
CLR
VST2
HST2
VEE

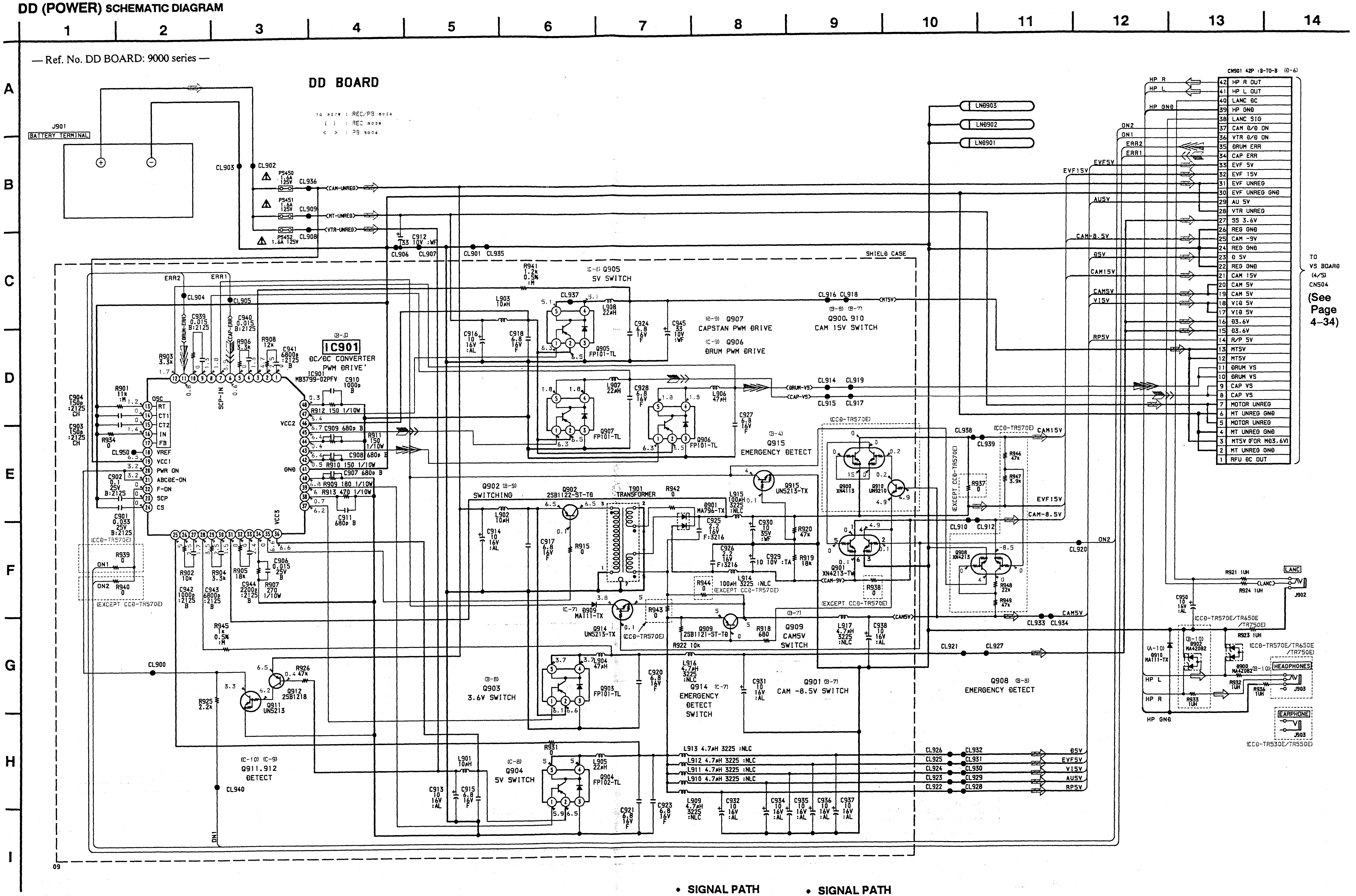
·COLOR LCD BLOCK is replaced as a block, so that there PRINTED WIRING BOARD SCHEMATIC DIAGRAM is omitted.



- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB	⇨	⇨⇨	

DD (POWER) SCHEMATIC DIAGRAM



1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
— Ref. No. DD BOARD: 9000 series —
DD BOARD
J901
BATTERY TERMINAL
CL903
CL902
PS450 1.6A 125V
PS451 1.6A 125V
PS452 1.6A 125V
CL936
CL909
CL908
<CAM-UNREG>
<MT-UNREG>
<VTR-UNREG>
C912 33 10V :WF
CL906
CL907
CL901
CL935
SHIELD CASE
ERR2
ERR1
CL904
CL905
IC901
DC/DC CONVERTER
PWM DRIVE
IC901 MB3799-02PFV
C910 1000p B
R912 150 1/10W
C909 680p B
R911 150 1/10W
C908 680p B
R910 150 1/10W
C907 680p B
R909 180 1/10W
R913 470 1/10W
C911 680p B
VCC2
GND
VCC3
OSC
RT
CT1
CT2
IN
FB
VREF
VCC1
PWR ON
ABCDE-ON
F-ON
SCP
CS
SCP-IN
R901 11k
C904 150p :2125 CH
C903 150p :2125 CH
R934 0
CL950
C902 0.1 25V B:2125
C901 0.033 25V B:2125
R903 3.3k
C939 0.015 B:2125
C940 0.015 B:2125
R906 3.3k
R908 12k
C941 6800p :2125 B
R939 0
ON1
ON2
R940 0
(EXCEPT CCD-TR570E)
R902 10k
R904 3.3k
R905 18k
C942 1000p :2125 B
C943 6800p :2125 B
C944 2200p :2125 B
C906 0.015 25V B
R907 270 1/10W
R945 1k 0.5% :M
CL900
R926 0.47k
R925 2.2k
Q912 2SB1218
Q911 UN5213
(C-10) (C-9)
Q911,912
DETECT
CL940
R941 1.2k 0.5% :M
(C-8) Q905
5V SWITCH
L903 10µH
CL937
L908 22µH
C916 10 16V :AL
C918 6.8 16V F
Q905 FP101-TL
C924 6.8 16V F
C945 33 10V :WF
(D-9) Q907
CAPSTAN PWM DRIVE
(C-9) Q906
DRUM PWM DRIVE
CL916 CL918
<MTSV>
(D-9) (D-7)
Q900, 910
CAM 15V SWITCH
L907 22µH
C928 6.8 16V F
L906 47µH
Q907 FP101-TL
Q906 FP101-TL
C927 6.8 16V F
CL914 CL919
<DRUM-VS>
<CAP-VS>
CL915 CL917
(D-4) Q915
EMERGENCY DETECT
Q915 UN5213-TX
Q900 XN4113
Q910 UN9210
(CCD-TR570E)
Q902 (D-9)
SWITCHING
Q902 2SB1122-ST-TD
T901 TRANSFORMER
R942 0
L915 100µH 3225 :NLC
D901 MA796-TX
L902 10µH
C914 10 16V :AL
C917 6.8 16V F
R915 0
C925 2.2 16V F:3216
C930 10 35V :WF
R920 47k
C926 2.2 16V F:3216
C929 10 10V :TA
R919 18k
Q901 XN4213-TW
<CAM-9V>
R944 0
L914 100µH 3225 :NLC
(EXCEPT CCD-TR570E)
R938 0
(C-7) Q909 MA111-TX
D914 UN5213-TX
R943 0
(CCD-TR570E)
Q909 2SB1121-ST-TD
R918 680
Q909 CAM5V SWITCH
R922 10k
L917 4.7µH 3225 :NLC
C938 10 16V :AL
(D-8) Q903
3.6V SWITCH
L904 47µH
Q903 FP101-TL
C920 6.8 16V F
L916 4.7µH 3225 :NLC
Q914 (C-7)
EMERGENCY DETECT SWITCH
C931 10 16V :AL
Q901 (D-7)
CAM -8.5V SWITCH
R931 0
(C-8) Q904
5V SWITCH
L901 10µH
L905 22µH
Q904 FP102-TL
C913 10 16V :AL
C915 6.8 16V F
C921 6.8 16V F
C923 6.8 16V F
L913 4.7µH 3225 :NLC
L912 4.7µH 3225 :NLC
L911 4.7µH 3225 :NLC
L910 4.7µH 3225 :NLC
L909 4.7µH 3225 :NLC
C932 10 16V :AL
C934 10 16V :AL
C935 10 16V :AL
C936 10 16V :AL
C937 10 16V :AL
CL926 CL932
CL925 CL931
CL924 CL930
CL923 CL929
CL922 CL928
05V
EVF5V
VIOV
AUSV
RP5V
ON1
LND903
LND902
LND901
CL938
CL939
R946 47k
R947 3.9k
R937 0
CAM15V
EVF15V
CAM-8.5V
CL910 CL912
Q908 XN4213
R948 22k
R949 47k
CL920
ON2
CL933 CL934
CAM5V
CL921 CL927
Q908 (D-8)
EMERGENCY DETECT
(EXCEPT CCD-TR570E)
HP R
HP L
HP GND
ON2
ON1
ERR2
ERR1
EVF5V
EVF15V
AUSV
CAM-8.5V
05V
CAM15V
CAM5V
VISV
RP5V
CN901 42P :B-TO-B (D-6)
42 HP R OUT
41 HP L OUT
40 LANC DC
39 HP GND
38 LANC SIG
37 CAM D/D ON
36 VTR D/D ON
35 DRUM ERR
34 CAP ERR
33 EVF 5V
32 EVF 15V
31 EVF UNREG
30 EVF UNREG GND
29 AU 5V
28 VTR UNREG
27 SS 3.6V
26 REG GND
25 CAM -9V
24 REG GND
23 D 5V
22 REG GND
21 CAM 15V
20 CAM 5V
19 CAM 5V
18 VID 5V
17 VID 5V
16 D3.6V
15 D3.6V
14 R/P 5V
13 MT5V
12 MT5V
11 DRUM VS
10 DRUM VS
9 CAP VS
8 CAP VS
7 MOTOR UNREG
6 MT UNREG GND
5 MOTOR UNREG
4 MT UNREG GND
3 MT5V (FOR MD3.6V)
2 MT UNREG GND
1 RFU DC OUT
TO VS BOARD (4/5) CN504
(See Page 4-34)
R921 1UH
<LANC>
R924 1UH
LANC
J902
C950 10 16V :AL
(CCD-TR570E/TR650E /TR750E)
R923 1UH
(A-10) D910 MA111-TX
(B-10) D902 MA4Z082
(CCD-TR570E/TR650E /TR750E)
D900 MA4Z082 (B-10)
HEADPHONES
R932 1UH
R936 1UH
R933 1UH
J903
HP L
HP R
HP GND
EARPHONE
J903
(CCD-TR530E/TR550E)
09

• SIGNAL PATH

	AUDIO SIGNAL
REC	
PB	⇨

• SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		⇛	
Capstan servo (speed and phase)		⇛»	

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

SECTION 6
INTERFACES • IC PIN

6-1. CAMERA CONTROL MICRO PROCESSOR PIN FUNCTION
(VC BOARD IC602: SC424608 MC68HC11MA8FU) (TR650E/TR750E: AEP, UK)
(VC BOARD IC602: MC68HC11MA8FU) (TR530E/TR550E/TR570E/TR750E: E, AUS)

Pin No.	Signal Name	I/O	Function
1	VTR SI	I	Serial data input from mode control microprocessor (VS board IC503).
2	$\overline{\text{VTR SCK}}$	I	Serial data transfer clock from/to mode control microprocessor.
3	$\overline{\text{CAM CS}}$	I	Chip select signal from mode control microprocessor.
4			Not used.
5			
6			
7			
8			
9	PBV	I	V sync signal from servo/mechanism control microprocessor (VS board IC505).
10			Not used (connected to +3.6V).
11			
12	VDD		+3.6V power supply.
13	VSS		GND
14	$\overline{\text{CS TG}}$	O	Chip select signal to timing generator (IC702).
15			Not used (connected to +3.6V).
16	START	O	Operation signal of IC705. Normally "L". "H" during operation.
17	WEN	I	Write enable signal from timing generator (IC702). Normally "H".
18			Not used.
19	$\overline{\text{CS VST}}$	O	Chip select signal to steady shot control microprocessor (IC777).
20	$\overline{\text{CS CORE}}$	O	Chip select signal to camera core (IC609).
21	EEPROM BUSY	I	BUSY signal from EEPROM (IC601). Normally "H". "L" during data read/write.
22			Not used.
23	IRIS PWM	O	Iris control signal.
24			Not used.
25			
26	$\overline{\text{TESTX}}$	O	Test signal of IC705. "H": Camera mode, "L": Test/VTR mode.
27	LENS RST LED	O	Lens reset sensor LED ON/OFF. "H": ON, "L": OFF.
28	FC RST	I	Lens focus reset sensor signal input.
29	ZM RST	I	Lens zoom reset sensor signal input.
30	XIRQ		Connected to +3.6V.
31	VDD		+3.6V power supply.
32	VSS		GND
33			Not used.
34			
35			
36	$\overline{\text{CAM SCK}}$	O	Serial data transfer clock.
37	CAM SO	O	Serial data output.
38	CAM SI	I	Serial data input.
39			Not used.
40			

Pin No.	Signal Name	I/O	Function
41	VDD		+3.6V power supply.
42	GENERAL A/D	I	Camera core (IC609) discrimination signal input.
43	LENS TYPE	I	Lens type discrimination signal input.
44	ZOOM SW	I	Zoom key signal input. When not pressed: 1.8V, TELE 1: 2.7V, TELE 2: 3.6V, WIDE 1: 0.9V, WIDE 2: 0V.
45	MAN FOCUS (2)	I	Manual focus dial signal (2) input. 0V to 3.4V depending on the dial turning.
46	MAN FOCUS (1)	I	Manual focus dial signal (1) input. 0V to 3.4V depending on the dial turning.
47			Not used. Connected to GND.
48			
49	HALL A/D	I	Hall voltage. Approx. 1V (iris opened) to approx. 3.5V (iris closed).
50	VRL	I	Connected to GND.
51	VRH	I	Connected to +3.6V.
52	VSS		GND
53	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (IC601).
54	$\overline{\text{CS CAM OPD}}$	O	Chip select signal to OPD (IC611).
55	D/A STB	O	Strobe signal to camera EVR (IC603).
56	EEPROM RESET	O	EEPROM (IC601) write disable signal. Normally "H".
57	$\overline{\text{CS AF OPD}}$	O	Chip select signal to AF OPD (IC611).
58	$\overline{\text{CS PDR}}$	O	Chip select signal to pre-driver (IC753).
59	$\overline{\text{CAM ON}}$	O	A/D converter (IC704) ON/OFF signal. Normally "H".
60	$\overline{\text{NTSC}}$	O	"L": NTSC, "H": PAL.
61	IRQ	I	Connected to +3.6V.
62			Not used.
63			
64	$\overline{\text{PDR RST}}$	O	Reset signal to zoom/focus pre-driver (IC753). "H": Camera mode, "L": VTR mode.
65	$\overline{\text{NRML}}$/VST	O	"H": Steady shot operation, "L": Normal operation.
66	$\overline{\text{VST/CORE RST}}$	O	Reset signal to steady shot control microprocessor (IC777) and camera core (IC609). Normally "H". "L": Reset.
67	$\overline{\text{OPD RST}}$	O	Reset signal to IC611 and IC705. "H": Camera mode, "L": VTR mode.
68			Not used. Connected to GND.
69			
70	VSS		GND
71	VDD		+3.6V power supply.
72			Not used.
73	EXTAL	I	24 MHz clock oscillation circuit.
74	XTAL	O	
75	$\overline{\text{RESET}}$	I	Reset signal from mode control microprocessor (VS board IC503). Normally "H". "L": Reset.
76	MODB		Connected to +3.6V.
77	MODA		Connected to GND.
78	RXD		Not used.
79	TXD		
80	VTR SO	O	Serial data output to mode control microprocessor (VS board IC503).

6-2. STEADY SHOT CONTROL MICRO PROCESSOR PIN FUNCTION
(VC BOARD IC777: CXP87132-010R) (TR750E: AEP, UK)
(VC BOARD IC777: CXP87132-016R) (TR530E/TR550E/TR570E/TR750E: E, AUS)

Pin No.	Signal Name	I/O	Function
1	MPX	O	Not used.
2	$\overline{\text{ADC STBY}}$	O	Standby output to A/D converter (IC776). Normally "H".
3	C RESET	O	Reset signal to PITCH/YAW sensor amplifier (IC772 to IC774) in initializing. Normally "L".
4	PB0/PPO8	O	Not used.
5	PC7/RTO7	O	
6	PC6/RTO6	O	
7	PC5/RTO5	O	
8	PC4/RTO4	O	
9	PC3/RTO3	O	
10	PC2/PPO18	O	
11	PC1/PPO17	O	
12	PC0/PPO16	O	
13	PJ7	O	
14	PJ6	O	
15	PJ5	O	
16	PJ4	O	
17	PJ3	O	
18	PJ2	O	
19	PJ1	O	
20	PJ0	O	
21	PD7	O	
22	PD6	O	
23	PD5	O	
24	PD4	O	
25	PD3	O	
26	PD2	O	
27	PD1	O	
28	PD0	O	
29	PH7	O	
30	PH6	O	
31	PH5	O	
32	PH4	O	
33	PH3	O	
34	PH2	O	
35	PH1	O	
36	PH0	O	
37	MP	I	Connected to GND.
38	$\overline{\text{VST RST}}$	I	Reset signal from camera microprocessor (IC602). Normally "H".
39	VSS		GND. Connected to GND.
40	XTAL	O	Connected to 12 MHz crystal oscillator.

Pin No.	Signal Name	I/O	Function
41	EXTAL	I	Connected to 12 MHz crystal oscillator.
42	$\overline{\text{CS VISTA MICOM}}$	I	Chip select signal from camera microprocessor (IC602).
43	S IN	I	Serial data input from camera microprocessor (IC602).
44	S OUT	O	Serial data output to camera microprocessor (IC602).
45	$\overline{\text{CAM SCK}}$	I	Serial data transfer clock from/to camera microprocessor (IC602).
46	PF7/AN11	O	Not used.
47	PF6/AN10	O	
48	PF5/AN9	O	
49	PF4/AN8	O	
50	AVSS		A/D port GND. Connected to GND.
51	AVREF	I	A/D port reference voltage input. Connected to +3.6V.
52	AVDD		A/D port positive power supply. Connected to +3.6V.
53	PF3/AN7	I	Not used. Connected to +3.6V.
54	PF2/AN6	I	
55	PF1/AN5	I	
56	PF0/AN4	I	
57	AN3	I	
58	AN2	I	
59	AN1	I	
60	AN0	I	
61	PG7/EX11	I	Not used. Connected to GND.
62	CGV	I	V SYNC from sync generator (IC610).
63	FLD	I	FLD signal from sync generator (IC610).
64	PG4/SYNC0	I	Not used. Connected to GND.
65	PG3//PBCTL	I	
66	PG2/DPG	I	
67	PG1/DFG	I	
68	PG0/CFG	I	
69	PE7/DAB1	O	Not used.
70	PE6/DAB0	O	
71	PE5/DAA1	O	
72	PE4/DAA0	O	
73	PE3/PWM1	O	
74	PE2/PWM0	O	
75	PE1//INT2	I	Not used. Connected to +3.6V.
76	PE0//INT0	I	
77	VST SI	I	Serial data input.
78	VST SO	O	Serial data output.
79	/VST SCK	O	Serial data transfer clock.
80	PI4//INT1	O	Not used.

Pin No.	Signal Name	I/O	Function
81	PI3/T0	O	Not used.
82	PI2//PWM	O	
83	PI1/P0	O	
84	PI0/PCK	I	Not used. Connected to +3.6V.
85	PKO	I	
86	GND		GND
87	VDD		+3.6V power supply.
88	VPP		Connected to +3.6V.
89	(/CS_DISP)	O	Not used.
90	PA6/PPO6	O	
91	/CS_ADC	O	Chip select signal to A/D converter (IC776).
92	/CS_ZTG	O	Chip select signal to timing generator (IC702).
93	/CS_ZVST	O	Chip select signal to IC613.
94	PA2/PPO2	O	Not used.
95	PA1/PPO1	O	
96	PA0/PPO0	O	
97	PB7/PPO15	O	
98	PB6/PPO14	O	
99	PB5/PPO13	O	
100	PB4/PPO12	O	

6-3. CAMERA CORE PIN FUNCTION
(VC BOARD IC609: CXD2150R) (TR750E: E, AUS)
(VC BOARD IC609: CXD2150AR)
(TR530E/TR550E/TR570E/TR650E/TR750E: AEP, UK)

Pin No.	Signal Name	I/O	Function	
1	OPD6	O	OPD (IC611) data output.	
2	OPD5	O	OPD data output.	
3	OPD4	O	OPD data output.	
4	OPD3	O	OPD data output.	
5	OPD2	O	OPD data output.	
6	OPD1	O	OPD data output.	
7	OPD0	O	OPD data output, LSB.	
8	OPDID	O	OPD line discrimination signal.	
9	VDD	–	Power supply (+3.6V).	
10	CO3	O	C signal output, MSB (Except CCD-TR650E).	
11	CO2	O	C signal output (Except CCD-TR650E).	
12	CO1	O	C signal output (Except CCD-TR650E).	
13	CO0	O	C signal output, LSB (Except CCD-TR650E).	
14	VSS	–	GND	
15	CI3	I	C signal input, MSB (Except CCD-TR650E).	
16	CI2	I	C signal input (Except CCD-TR650E).	
17	CI1	I	C signal input (Except CCD-TR650E).	
18	CI0	I	C signal input, LSB (Except CCD-TR650E).	
19	NRB	O	C signal. Color discrimination signal.	
20	VDD	–	+3.6V power supply.	
21	VBC		Connected to GND via 0.1 μF capacitor.	Chroma signal D/A converter interface.
22	AVSC		GND	
23	IREFC		Connected to GND via 12 kΩ resistor.	
24	VREFC	I	Full scale output value setting voltage.	
25	VGC		Connected to +3.6V power supply via 0.1 μF capacitor.	
26	AVDC		+3.6V power supply.	
27	IOC	O	Chroma signal output (Current output).	
28	VDD	–	Y I/F power supply (+3.6V).	
29	DICK	O	Memory interface reference clock (Except CCD-TR650E).	
30	CDIS	O	Digital output (chroma) color discrimination signal.	
31	YO7	O	Y signal output, MSB (Except CCD-TR650E).	
32	YO6	O	Y signal output (Except CCD-TR650E).	
33	YO5	O	Y signal output (Except CCD-TR650E).	
34	YO4	O	Y signal output (Except CCD-TR650E).	
35	YO3	O	Y signal output (Except CCD-TR650E).	
36	YO2	O	Y signal output (Except CCD-TR650E).	
37	YO1	O	Y signal output (Except CCD-TR650E).	
38	YO0	O	Y signal output, LSB (Except CCD-TR650E).	
39	DATS	I	DA test pin. (Normally fixed at "L".)	
40	YI7	I	Y signal input, MSB (Except CCD-TR650E).	

Pin No.	Signal Name	I/O	Function	
41	YI6	I	Y signal input (Except CCD-TR650E).	
42	YI5	I	Y signal input (Except CCD-TR650E).	
43	YI4	I	Y signal input (Except CCD-TR650E).	
44	YI3	I	Y signal input (Except CCD-TR650E).	
45	YI2	I	Y signal input (Except CCD-TR650E).	
46	YI1	I	Y signal input (Except CCD-TR650E).	
47	YI0	I	Y signal input, LSB (Except CCD-TR650E).	
48	VSS	–	GND	
49	IOY	O	Y signal output (current output).	Y signal D/A converter interface.
50	AVDY		+3.6V power supply.	
51	VGY		Connected to +3.6V power supply via 0.1 μF capacitor.	
52	VRFY	I	Full scale output value setting voltage.	
53	IRFY		Connected to GND via 12 kΩ resistor.	
54	AVSY		GND	
55	VBY		Connected to GND via 0.1 μF capacitor.	
56	VDD	–	+3.6V power supply	
57	BIN	I	Not used.	
58	GIN	I	Not used.	
59	RIN	I	Not used.	
60	TIKEY	I	Not used.	
61	WKEY	I	Wide ID signal input.	
62	VCK	I	PAL 4 fsc modulation clock.	
63	VHLD	I	Mosaic processing vertical hold control signal.	
64	HHLD	I	Mosaic processing horizontal hold control signal.	
65	CSYN	I	Sync signal (SYNC) input.	
66	LALT	I	PAL line modulation inverted signal input.	
67	CBK	I	Blanking signal (CBLK) input.	
68	BF	I	Burst added signal input.	
69	HD	I	Horizontal sync signal (HD) input.	
70	VD	I	Vertical sync signal (VD) input.	
71	AJST	I	Data sampling pulse input.	
72	VDD	–	+3.6V power supply.	
73	SCK	I	Serial interface clock input from camera microprocessor (IC602).	
74	SI	I	Serial interface data input from camera microprocessor.	
75	XCE	I	Serial interface enable input from camera microprocessor.	
76	SO	O	Serial interface data output to camera microprocessor.	
77	VSS	–	GND	
78	CLK	I	Clock input.	
79	DEF	I	Defect compensation position pulse.	
80	ID	I	Color line discrimination signal.	

Pin No.	Signal Name	I/O	Function
81	MCK	I	Main clock input.
82	VDD	–	+3.6V power supply.
83	XCLR	I	All clear input.
84	VDD	–	AD I/F power supply (+3.6V).
85	ADCK	O	AD converter clock output. Not used.
86	VSS	–	GND
87	AD0	I	AD data input from A/D converter (IC704), MSB.
88	AD1	I	AD data input from A/D converter.
89	AD2	I	AD data input from A/D converter.
90	AD3	I	AD data input from A/D converter.
91	AD4	I	AD data input from A/D converter.
92	AD5	I	AD data input from A/D converter.
93	AD6	I	AD data input from A/D converter.
94	AD7	I	AD data input from A/D converter.
95	AD8	I	AD data input from A/D converter.
96	AD9	I	AD data input from A/D converter, LSB.
97	VDD	–	+3.6V power supply.
98	OPD9	O	OPD (IC611) data output, MSB.
99	OPD8	O	OPD data output.
100	OPD7	O	OPD data output.

6-4. MECHANISM CONTROL MICRO PROCESSOR PIN FUNCTION
(VS BOARD IC505: CXP87132-009R)

Note 1: CCD-TR570E/TR650E/TR750E
Note 2: CCD-TR650E/TR750E

Pin No.	Signal Name	I/O	Function
1	RP PB MODE	O	REC/PB switching signal of REC/PB amplifier (VS board IC102) and ATF servo IC (VS board IC508). "H": PB.
2	$\overline{\text{FE ON}}$	O	Flying erase oscillation on/off control signal. "L": Oscillation.
3	JOG VD	O	False VD signal inserted in playback video signal during variable speed playback.
4	JOG	O	Variable speed playback/normal playback switching signal of video circuit. "H": Variable speed playback.
5	$\overline{\text{S JACK IN}}$	I	(Note 2)
6	$\overline{\text{PB 1.7M DET}}$	I	AFM stereo tape/monaural tape discrimination input. "H": During stereo or bilingual tape playback. (Note 1)
7	JACK MON/$\overline{\text{ST}}$ DET	I	Monaural/stereo discrimination input of audio input/output terminal. "L": When jack is inserted in right channel terminal. (Note 1)
8	INT VD	O	Internal VD signal.
9	SYSTEM SYNC (PBV)	O	System synchronizing signal.
10	$\overline{\text{SYNC DET}}$	O	Sync detect output. "L" when sync is detect.
11	E/$\overline{\text{L}}$ DET	I	Normal/Hi8 discrimination input. "H" when Hi8 tape playback. (Note 2)
12	$\overline{\text{MIC MONO}}$	I	External microphone monaural/stereo discrimination input. "L": When monaural microphone is used. (Note 1)
13	MODE SW 0	I	Mode switch input.
14	MODE SW 1	I	
15	MODE SW 2	I	

	BL	END	EJECT	USE	LOAD	READY	TURN	REC/PB	FF
M SW 0	H	L	L	H	L	H	H	L	L
M SW 1	H	H	L	L	L	L	H	H	L
M SW 2	H	H	H	H	H	L	L	L	L

Pin No.	Signal Name	I/O	Function
16	$\overline{\text{CC DOWN SW}}$	I	Cassette compartment down switch input. "L": down
17	REC PROOF SW	I	Recording-proof switch input. "H": REC prohibition.
18	ME/$\overline{\text{MP}}$ SW	I	ME/$\overline{\text{MP}}$ switch input. "L": MP, "H": ME.
19	Hi8 MP SW	I	Hi8 MP switch input. "H": Hi8 MP, "L": Normal MP or ME.
20	$\overline{\text{LM LIM ON}}$	O	Loading motor limiter on detection signal. Normally "H": "L" when limiter is on.
21	LINE MIX	O	Audio stereo/monaural control signal. (Note 1)
22	MX SEL 1	O	When recording: Monaural/stereo switching signal. When playing back: Monaural/stereo/bilingual switching signal.
23	MX SEL 2	O	

When recording: Monaural/stereo switching signal.

	Monaural	Stereo
MX SEL 1	L	L
MX SEL 2	H	L

When playing back: Monaural/stereo/bilingual switching signal.

	Stereo	Main	Sub	Monaural
MX SEL 1	L	L	H	L
MX SEL 2	L	H	L	H

(Note 1)

Pin No.	Signal Name	I/O	Function
24	MX ON/OFF	O	Matrix on/off signal. "H": Matrix on (stereo recording/playback) (Note 1)
25	COMP REC	O	Video input/S video input switching signal. "H": Video input.
26	CAM/$\overline{\text{LINE}}$	O	Camera input/line input switching signal. "H": Camera input.
27	$\overline{\text{WIND}}$	O	"L": Wind sound decrease on. (Note 1)
28	N.C.		Not used.
29	UNLOAD	O	Loading motor control signal. When unloading: "H" or "H" pulse.
30	LOAD	O	Loading motor control signal. When loading: "H" or "H" pulse.

Pin No.	Signal Name	I/O	Function
31	$\overline{\text{LM LIM CONT}}$	O	Loading motor limiter control signal. Momentarily "H" when loading.
32	DRUM ON	O	Drum motor on/off signal. "H" (Approx. 1.3V): Drum on.
33	DRUM RVS	O	Drum rotation direction control signal. Normally "L".
34	N.C.		Not used. (open)
35	$\overline{\text{EDIT}}$	O	Video circuit normal/EDIT switching signal. "L": When edit of menu display is at "ON".
36	E/$\overline{\text{L}}$ OUT	O	Video circuit normal/Hi8 switching signal. "H": Hi8 mode. (Note 2)
37	MP		Connected to GND.
38	$\overline{\text{RESET}}$	I	Reset signal from mode control micro processor (VS board IC503). When reset: "L".
39	VSS		GND
40	XTAL	O	11.719 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{MECHA CON CS}}$	I	Chip select signal from mode control micro processor (VS board IC503).
43	DATA TO SLAVE	I	Serial data input from mode control micro processor.
44	DATA TO MASTER	O	Serial data output to mode control micro processor.
45	$\overline{\text{MODECON SCK}}$	I	Serial clock input from mode control micro processor.
46	AUDIO MUTE	O	Audio output mute signal. "H": Mute.
47	VIDEO MUTE	O	Video output mute signal. "H": Mute.
48	MONO REC (1.7M $\overline{\text{ON}}$/OFF)	O	Monaural/stereo recording switching signal. "H": During monaural recording (1.7 MHz REC AFM carrier off). (Note 1)
49	N.C.		
50	AVSS		A/D converter system GND.
51	AVREF		A/D converter system reference voltage. Connected to SS3.6V.
52	AVDD		A/D converter system power supply. Connected to SS3.6V.
53	EXT MIC	I	External microphone discrimination input. Not used.
54	END SENS	I	Tape end detection signal. Normally: "L", "H" pulse at tape end.
55	TOP SENS	I	Tape top detection signal. Normally: "L", "H" pulse at tape top.
56	$\overline{\text{DEW DET}}$	I	Condensation detection signal. "L" when condensation present.
57	N.C.		Not used. Connected to GND.
58	ATF ERROR	I	ATF error input.
59	S REEL FG	I	S reel FG signal input.
60	T REEL FG	I	T reel FG signal input.
61	NC		Not used. Connected to GND.
62	CAM VD	I	VD signal from camera circuit sync generator (VC board IC610). V cycle pulse.
63	FLD	I	FIELD signal from camera circuit sync generator.
64	VTR SYNC	I	Composite sync signal separated from recording/playback Y signal.
65		I	Connected to GND.
66	DRUM PG	I	Drum PG signal input. For drum phase servo. 40 msec. cycle "H" pulse.
67	DRUM FG	I	Drum FG signal input. For drum speed servo. 3.3 msec. cycle pulse.
68	CAP FG	I	Capstan FG signal input.
69	N.C.	O	Not used.

Pin No.	Signal Name	I/O	Function
70	T/E LED ON	O	TAPE LED on/off signal. 200 msec. cycle "H" pulse during REC/PB.
71	SP/$\overline{\text{LP}}$	O	SP/LP switching signal. "L": LP.
72	ME/$\overline{\text{MP}}$ OUT	O	Recording current switching signal. "H": ME tape.
73	CAP PWM	O	Capstan error signal output. PWM signal.
74	DRUM PWM	O	Drum error signal output. PWM signal.
75	CFG HMS	I	Capstan FG signal input.
76	5.9M ATF CLK	O	Clock signal for ATF servo IC (IC508).
77	$\overline{\text{CS TO ATF}}$	O	Chip select signal for ATF servo IC.
78	DATA TO ATF	O	Serial data output to ATF servo IC.
79	$\overline{\text{ATF SCK}}$	O	Serial clock output to ATF servo IC.
80	ATF STBY	O	Standby signal for ATF servo IC.
81	SP/LP DET	I	Discriminates recording mode.
82	CLOG DET	I	Head clog detection signal. "L": Normal.
83	REF PILOT	O	Reference pilot signal for ATF servo.
84	N.C.		Not used. Connected to GND.
85	N.C.	I	
86	VSS		GND
87	VDD		Connected to SS3.6V.
88	VPP		
89	DRUM ACC	O	Drum motor acceleration signal.
90	DRUM BLK	O	Drum motor brake signal. Normally: "L".
91	N.C.		Not used. (open)
92	N.C.	O	
93	VIDEO IN/$\overline{\text{OUT}}$	O	Video input/output switching signal. "L": Video output.
94	AUDIO $\overline{\text{IN}}$/OUT	O	Audio input/output switching signal. "H": Audio output.
95	VA PB MODE	O	REC/PB switching signal of video; audio circuit. "H": PB.
96	VI SWP	O	RF switching pulse signal for video circuit.
97	RF SWP	O	RF switching pulse signal for REC/PB amp and audio circuit.
98	HEAD CHG	O	Head switching signal.
99	CAP ON	O	Capstan driver on/off control signal. "H": Capstan on.
100	CAP FWD/$\overline{\text{RVS}}$	O	Capstan rotation direction control signal. "H": FWD. "L": RVS.

6-5. MODE CONTROL MICRO PROCESSOR PIN FUNCTION (VS BOARD IC503: MB89098PFV-G-107-BND)

Note 1: CCD-TR570E
Note 2: CCD-TR750E
Note 3: Except CCD-TR650E
Note 4: CCD-TR750E E, Australian model

Pin No.	Signal Name	I/O	Function
1	TEST MODE 0	I	Connected to GND.
2	TEST MODE 1	I	Connected to GND.
3	X0	I	10 MHz clock oscillation circuit.
4	X1	O	
5	VSS		GND
6	$\overline{\text{RESET}}$	I	Reset input.
7	$\overline{\text{DATA SW}}$	I	Date (+) key (CK board S221) input. Normally "H". "L" when key is pressed.
8	$\overline{\text{TIME SW}}$	I	Time key (CK board S222) input. Normally "H". "L" when key is pressed.
9	$\overline{\text{EJECT SW}}$	I	Cassette eject switch (FK board S103) input. Normally "H". "L" when switch is pressed.
10	$\overline{\text{VTR MODE SW}}$	I	Power supply switch (CK board S223) input. "L" when power supply switch is at "Video".
11	$\overline{\text{AGE SW}}$	I	AGE switch input. "L" when key is pressed. Not used.
12	$\overline{\text{START/STOP SW}}$	I	Start/stop key (FK board S102) input. "L" when key is pressed.
13	$\overline{\text{CC DOWN SW}}$	I	CCDOWN switch (mechanism section) input. "L" when cassette compartment is locked.
14	$\overline{\text{CAM+STBY SW}}$	I	Power supply switch (CK board S223), stand-by switch (FK board S101) input. "L" when power supply switch is at "Camera" and stand-by switch at "Standby".
15	BATT IN	I	Main battery detection input. "H" when main battery is loaded or external power supply is connected.
16	PB V	I	System sync signal from mechanism control micro processor (VS board IC505).
17	RF SWP	I	RF switching pulse.
18	$\overline{\text{LANC POWER ON}}$	I	Power on signal input from wired remote commander. "L" when power switch of remote commander is pressed.
19	$\overline{\text{LI PRE END}}$	I	Lithium battery end detection input. "L" when lithium battery has worn out or has not been loaded.
20	$\overline{\text{EEPROM WE}}$	O	EEPROM (VS board IC502) writing enable signal. "L" when writing data.
21			Not used.
22			
23	$\overline{\text{TALLY LED}}$	O	Tally LED on/off signal.
24	$\overline{\text{SYSTEM RESET}}$	O	Reset signal of all systems. Normally "H". "L" when reset.
25	N.C.	O	Not used
26	BATT IN	I	
27	N.C.		Not used.
28	N.C.		
29	N.C.		
30	$\overline{\text{SIRCS SIG}}$	I	Infrared remote commander signal input.
31	N.C.		Not used.
32			
33	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (VS board IC502).
34	$\overline{\text{CS VIDEO}}$	O	Chip select signal to video IC (VS board IC201).
35	EVF DA STB	O	Chip select signal to EVR of COLOR EVF (VF board IC903) (Note 1).
36	$\overline{\text{CS SG}}$	O	Chip select signal to SYNC generator (VC board IC610).
37	CS DA	O	Strobe signal to DA (VS board IC951).
38	$\overline{\text{CS CAM}}$	O	Chip select signal to camera micro processor (VC board IC602).
39	N.C.	O	Not used.
40	N.C.	O	

Pin No.	Signal Name	I/O	Function
41	N.C.		Not used.
42	N.C.		
43	SEG19	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
44	SEG18	O	
45	SEG17	O	
46	SEG16	O	
47	VCC		+3.6V power supply (+3V power supply during backup).
48	SEG15	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
49	SEG14	O	
50	SEG13	O	
51	SEG12	O	
52	SEG11	O	
53	SEG10	O	
54	SEG09	O	
55	SEG08	O	
56			GND
57	SEG07	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
58	SEG06	O	
59	SEG05	O	
60	SEG04	O	
61	SEG03	O	
62	SEG02	O	
63	SEG01	O	
64	SEG00	O	
65	V3	I	3.6V LCD drive bias voltage. (Note 2)
66	V2	I	2.4V
67	V1	I	1.2V
68	V0	I	0V
69	COM0	O	LCD COM terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
70	COM1	O	
71	COM2	O	
72	COM3	O	
73	$\overline{\text{CS OSD}}$	O	Chip select signal to character generator (VC board IC614).
74	$\overline{\text{CS MECHA}}$	O	Chip select signal to mechanism control micro processor (VS board IC505).
75	DATA TO MASTER	I	Serial data input signal.
76	DATA TO SLAVE	O	Serial data output signal.
77	$\overline{\text{MODECON SCK}}$	O	Serial data transfer clock.
78	N.C.	O	Not used.
79	VTR DD ON	O	VTR DC-DC converter control signal. "H" when power switch is at "Player/video" or "Camera".
80	CAM DD ON	O	CAMERA DC-DC converter control signal.
81	AVSS		A/D port GND.

Pin No.	Signal Name	I/O	Function
82	K AD IN 0	I	Key input. A/D port. REC key (FK board S101, 106 (Note 4)) FF key (FK board S105) STOP key (FK board S104)
83	K AD IN 1	I	Key input. A/D port. PLAY key (FK board S111) REW key (FK board S110) PAUSE key (FK board S109)
84	K AD IN 2	I	Key input. A/D port. SET key (CK board S204) SELECT (–) key (CK board S203) SELECT (+) key (CK board S202) MENU key (CK board S201)
85	K AD IN 3	I	Key input. A/D port. FOCUS MANUAL key (CK board S211 (Note 2)) FADER key (CK board S208) BACK LIGHT/EXPOSURE key (CK board S207) PROGRAM AE key (CK board S205)
86	K AD IN 4	I	Key input. A/D port. STEADY SHOT key (CK board S211 (Note 3)) EDIT SEARCH (–) key (CK board) EDIT SEARCH (+) key (CK board) COUNTER RESET key (CK board)
87	N.C.		Not used.
88	N.C.		
89	N.C.		
90	AVCC		A/D port power supply (+3.6V).
91	BATT SENS	I	For main battery voltage input. (Voltage divided into 1/3.14 by R586, R587).
92	N.C.	I	Not used.
93	BRIGHA B	I	Brightness adjusting dial input. Pulse input by dial rotation. (Note 2).
94	BRIGHT B	I	Brightness adjusting dial input. Pulse input by dial rotation. (Note 2).
95	LANC IN	I	LANC serial data input.
96	LANC OUT	O	LANC serial data output.
97	BUZZER	O	Buzzer output.
98	VCC		+3.6V power supply.
99	CL1	O	32 kHz clock oscillation circuit (for clock).
100	CL0	I	

6-6. INTERFACE

6-6-1. System Control – Video/Audio Block Interface (VS BOARD)

NAME	I/O	No.	VTR MODE				CAMERA MODE	
			STOP	FF	REW	PB	STAND BY	REC
SP/$\overline{\text{LP}}$	O	IC505 (71)	H	H	H	*1	*8	*8
VA PB MODE	O	IC505 (95)	L	L	L	H	L	L
AUDIO MUTE	O	IC505 ㊻	L	L	L	L	L	L
VIDEO MUTE	O	IC505 ㊼	H	H	H	*7	L	L
CAM/$\overline{\text{LINE}}$	O	IC505 ㉖	L	L	L	L	H	H
JOG VD	O	IC505 ③	L	L	L	L	L	L
RP PB MODE	O	IC505 ①	H	H	H	H	H	L
$\overline{\text{FE ON}}$	O	IC505 ②	H	H	H	H	H	L
RF SWP	O	IC505 (97)	L	*2	*2	*2	*2	*2
JOG	O	IC505 ④	L	L	L	L	L	L
$\overline{\text{CS VIDEO}}$	O	IC505 ㉞	V period "L" pulse					
CS DA	O	IC505 ㊲	V period 'H" pulse					
DATA TO SLVE	O	IC503 (76)	V period pulse train					
$\overline{\text{MODECON SCK}}$	I	IC503 (77)	V period pulse train					
SP/$\overline{\text{LP}}$ DET	I	IC505 (81)	L	*3	*3	L	H	H
CLOG DET	I	IC505 (82)	L	*4	*4	*4	*4	H
VTR SYNC	I	IC505 (64)	L	*5	*5	*5	*5	*5
COMP REC	O	IC505 ㉕	L	L	L	L	L	L

*1. Outputs discrimination result of the playback tape.
"H" : SP mode, "L": LP mode.
*2. 25 Hz duty 50% pulse (synchronized with drum rotation)
*3. "H": SP recording area on tape. "L": LP recording area.
*4. "H": no recording area.
*5. Composite sync signal.
*7. "H" when tape no signal.
*8. By REC MODE switch in the menu system.
"H": SP mode, "L": LP mode.

6-6-2. System Control – Servo Block Interface

NAME	I/O	No.	VTR MODE				CAMERA MODE	
			STOP	FF	REW	PB	STAND BY	REC
T.REEL FG	I	IC505 (60)	–	*1	*1	*1	–	*1
S.REEL FG	I	IC505 (59)	–	*1	*1	*1	–	*1
ATF ERROR	I	IC505 (58)	–	*2	*2	*2	*2	*2
DRUM PG	I	IC505 (66)	–	*3	*3	*3	*3	*3
DRUM FG	I	IC505 (67)	–	*4	*4	*4	*4	*4
CAP FG/CFG HMS	I	IC505 (68), (75)	–	*5	*5	*5	*5	*5
CAP ON	O	IC505 (99)	L	H	H	H	L	H
REF PILOT	O	IC505 (83)	*7	*6	*6	*6	*6	*6
RP PB MODE	O	IC505 ①	H	H	H	H	H	L
DRUM RVS *9	O	IC505 ㉝	H	H	H	H	H	H
CAP FWD/$\overline{\text{RVS}}$	O	IC505 (100)	L	H	L	H	L	H
DRUM PWM	O	IC505 (74)	L	*8	*8	*8	*8	*8
CAP PWM	O	IC505 (73)	L	*8	*8	*8	L	*8
$\overline{\text{LM LIM CONT}}$ *10	O	IC505 ㉛	L	L	L	L	L	L
DRUM ON *11	O	IC505 ㉜	L	H	H	H	H	H
DRUM ACC	O	IC505 (89)	L	L	L	L	L	L
DRUM BRK	O	IC505 (90)	L	L	L	L	L	L

*1. Inputting waveform.
*2. ATF error voltage input.
*3. One PG pulse input.
*4. FG pulses input.
*5. FG pulses input.
*6. Four frequencies.
*7. f1 (101.0 kHz) or f3 (162.8 kHz) output
*8. PWM signal.
*9. Normally "H".
Temporary "L" when load (drum reverse rotation).
*10. Temporary "H" when cassette loading
(finger catch protection).
*11. "H": approx. 1.3 Vdc.

SECTION 7
ADJUSTMENTS

7-1. CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 7–25.

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Regulated power supply
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)[Note 1]	J-6082-053-A	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	Extension cable (42P, 0.8 mm)	J-6082-285-A	For extension between the VC board (CN601) and VS board (CN203)
	Extension cable (34P, 0.8 mm)	J-6082-286-A	For extension between the AU-165 board CN1302 and VS board (CN202), For CCD-TR570E/TR650E/TR750E
	Extension cable (12P, 0.8 mm)	J-6082-287-A	For extension between the PJ-61 board (CN1502) and VS board (CN204)
J-8	Extension cable (9P, 0.8 mm)	J-6082-288-A	For extension between the FK board and VS board (CN502)
	Extension cable (18P, 0.8 mm)	J-6082-289-A	For extension between the CK board and VS board (CN503)
J-9	Measuring pin tool for color electronic viewfinder	J-6082-192-A	For adjusting the color electronic viewfinder, For CCD-TR570E

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

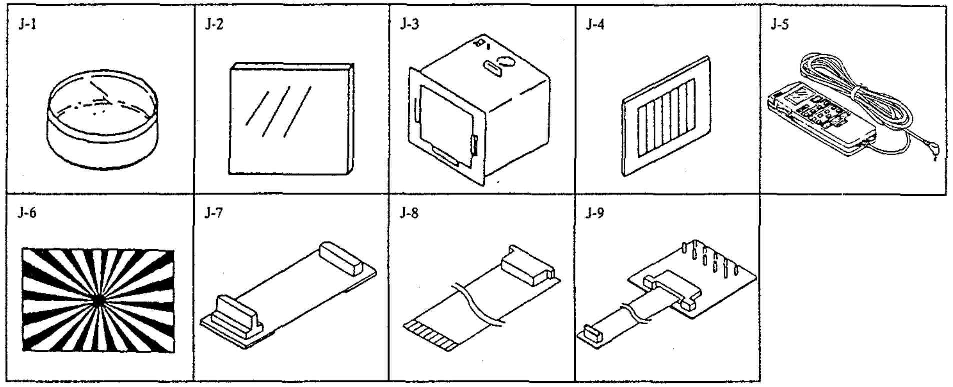


Fig. 7-1-1.

1-1-2. Preparations

Note 1: For further details of how to remove the cabinet and each board, refer to "2. Disassembly".

Note 2: When adjusting only, the lens block and VC board need not be taken apart.

1) Connect the equipments for adjusting as shown in Fig. 7-1-3.
2) The F panel block (MA board) is not required in adjustments. Remove the following connector.
   1. CN1301 of the AU board
3) If remove the cabinet (R) (Power switch, camera function switch and electronic view-finder), set to the camera power supply ON mode (Note 1), and disconnect the following connectors.
   1. CN503 of VS board
   2. CN206 of VS board
   3. CN101 of ZB board

   Be sure to exit this mode after completing the adjustment. (Note 2)
4) Turning OFF the Auto Focus Using the Adjusting Remote Commander
   1. Set data: 01 to page: 6, address: 25.
      (The auto focus will turn OFF. The focus can be adjusted using the focus button on the adjusting remote commander. But the HOLD switch must be set to OFF.)
   2. After completing the adjustment/operation check, set data: 00 to page: 6, address: 25.
5) Turning OFF the STEADY SHOT Function Using the Adjusting Remote Commander (EXCEPT CCD-TR650E)
   1. Set data: 02 to page: 6, address: 32.
   2. Set data: 01 to page: 6, address: 33.
      (The STEADY SHOT will go OFF.)
   3. After completing the adjustment/operation check, return the data of address: 32 and address: 33 of page: 6 to 00.

Note 1: Setting the Forced Camera Power Supply ON Mode
1) Set data: 01 to page: 1, address: 00.
2) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.

By carrying out the above, the camera can be operated even if the cabinet (R) has been removed. Be sure to exit the forced camera power ON mode after completing the adjustment.

Note 2: Exiting the Forced Camera Power Supply ON Mode
1) Set data: 01 to page: 1, address: 00.
2) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 1, address: 00.

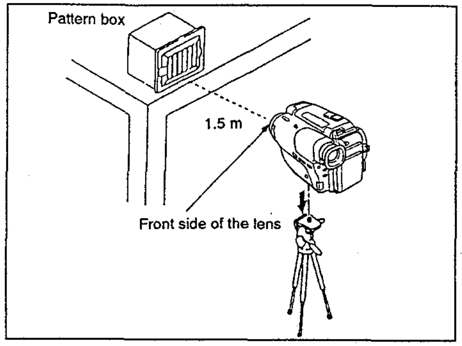


Fig. 7-1-2.

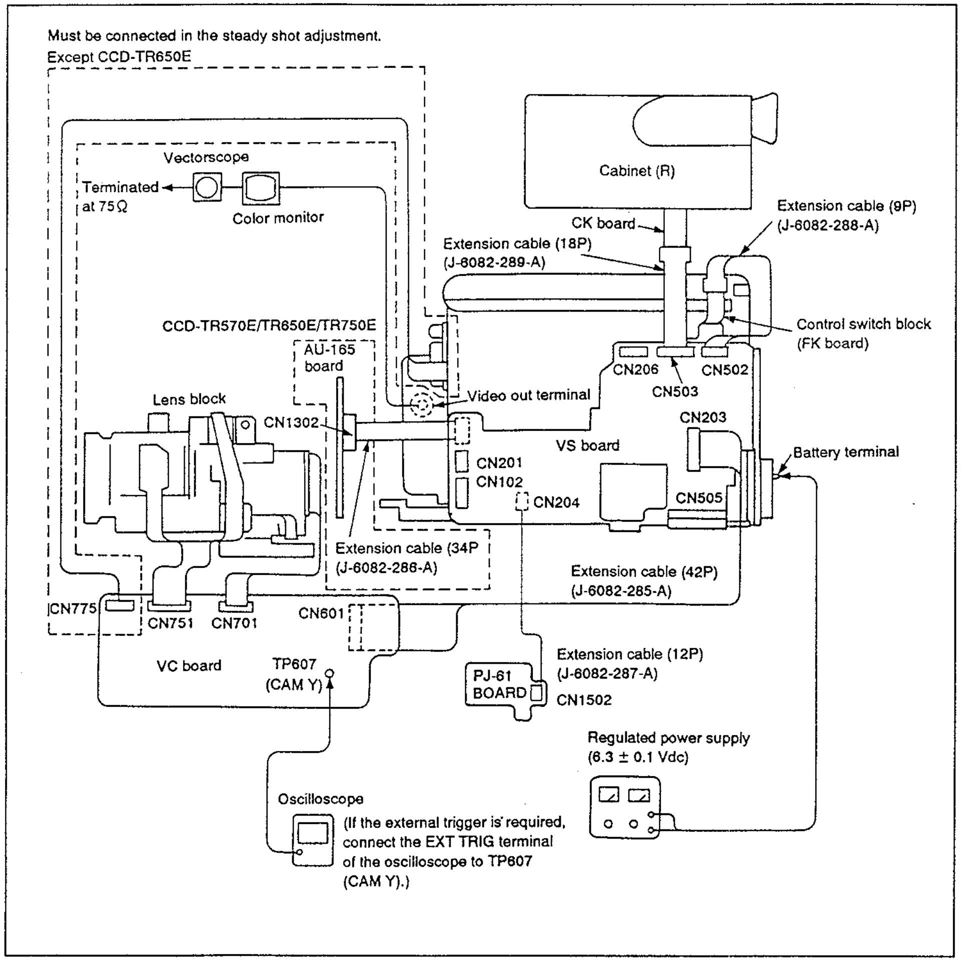

Must be connected in the steady shot adjustment.
Except CCD-TR650E
Vectorscope
Terminated at 75Ω
Color monitor
Cabinet (R)
CK board
Extension cable (9P)
(J-6082-288-A)
Extension cable (18P)
(J-6082-289-A)
Control switch block
(FK board)
CCD-TR570E/TR650E/TR750E
AU-165
board
CN206
CN502
CN503
Video out terminal
Lens block
CN1302
CN203
VS board
Battery terminal
CN201
CN102
CN204
CN505
Extension cable (34P)
(J-6082-286-A)
Extension cable (42P)
(J-6082-285-A)
CN775
CN751
CN701
CN601
VC board
TP607
(CAM Y)
Extension cable (12P)
(J-6082-287-A)
PJ-61
BOARD
CN1502
Regulated power supply
(6.3 ± 0.1 Vdc)
Oscilloscope
(If the external trigger is required, connect the EXT TRIG terminal of the oscilloscope to TP607 (CAM Y).)

Fig. 7-1-3.

1-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

1. Camera/player power switch
   (control switch block (CK board))························Camera
2. Standby switch (control switch block (FK board))··· Standby
3. PROGRAM AE button
   (control switch block (CK board))····························Off
4. FOCUS switch (control switch block (CK board))····Manual
5. BACK LIGHT button
   (control switch block (CK board))····························Off
6. STEADY SHOT button (control switch block (CK board))
   (EXCEPT CCD-TR650E)·······································Off

2. Adjusting Procedure

Adjust in the given order.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 7-1-4. if adjustments are performed using the color bar chart.
   (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and so that the white pattern will be displayed.
   Don't touch the zoom switch.

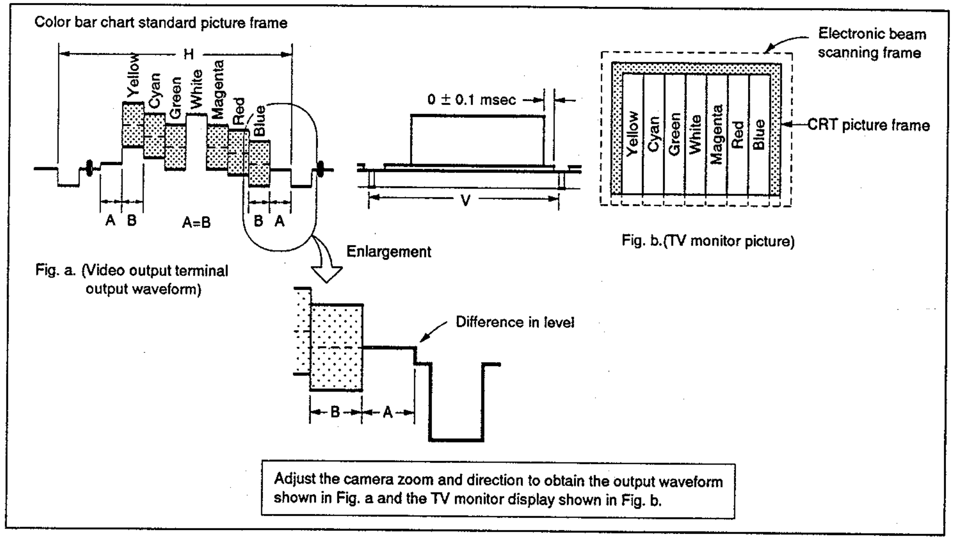

Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
0 ± 0.1 msec
V
Enlargement
Difference in level
B
A
Electronic beam scanning frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame

Fig. a. (Video output terminal output waveform)

Fig. b.(TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 7-1-4.

3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm× 841 mm) paper to a black one, and make the chart shown in Fig. 7-1-5.

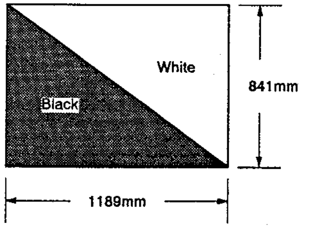

White
Black
841mm
1189mm

Fig. 7-1-5.

Note: Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

1-1-4. Adjusting Remote Commander

The camera section is adjusted by changing the constant or coefficient of the digital signal processing calculation, or modifying the output voltage of the EVR IC (VC board IC603). This is controlled by the camera micro processor (VC board IC602), which reads the data written in the nonvolatile memory (VC board IC601: EEPROM), and transmits it to the digital signal processing circuit and EVR.

To perform adjustments, adjustment data written in the nonvolatile memory must be rewritten, using the adjusting remote commander.

The adjusting remote commander uses the remote commander signal line (LANC) to communicate mutually with the camera microprocessor. The page, address and the up/down commands of the data are transmitted from the adjusting remote commander to the camera micro processor. And, the page, address, and data are transmitted for the vice versa.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote terminal.
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 7-1-6.

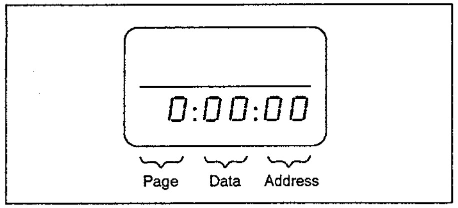


Fig. 7-1-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1-1.

   - Changing the address
     The address increases when the FF (▸▸) button is pressed, and decreases when the REW (◂◂) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory.
     (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 6, address: 00, and adjust the data to 01. Page F, and enables the camera section (Addresses 01 to BF of page F) to be adjusted.
5) After completing all adjustments, turn off the main power supply (6.3V) once.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

1-1-5. Page F Address List

Note 1: The data already listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are values just after executing "Page F Data Initialization" and "Page F Data Modification". They are different from the values after executing all adjustments.

Note 3: In some cases, data have been input to the page F addresses C0 to FF. This has no relation to the adjustments.

Note 4: No mark : CCD-TR530E/TR550E/TR570E
( ) : CCD-TR650E
⟨ ⟩ : CCD-TR750E

Note 5: No mark : CCD-TR530E/TR550E/TR570E/TR750E
( ) : CCD-TR650E

Address	Adjustment data	
	Initial value	**Memo column**
00 Note 4	5B (59) ⟨57⟩	5B (59) ⟨57⟩
01	01	01
02	00	00
03 Note 5	07 (00)	07 (00)
04	80	
05	80	
06	80	
07	80	
08	2D	
09	26	
0A	FA	
0B	F1	
0C	30	
0D	00	
0E	58	
0F	00	
10	E0	E0
11	8F	
12	6C	
13	36	
14	3C	
15	B6	
16	0D	
17	A3	
18	12	
19	8E	
1A	10	
1B	E2	
1C	0C	0C
1D	00	00
1E	80	
1F	80	
20 Note 5	79 (80)	79 (80)
21 Note 5	79 (80)	79 (80)
22	00	00
23	59	59
24	4C	4C
25	B5	B5
26	23	23
27 Note 5	3C (3A)	3C (3A)
28	A2	A2
29	0E	0E

Table 7-1-2 (1).

Address	Adjustment data	
	Initial value	Memo column
2A	2C	2C
2B	50	50
2C	FF	FF
2D	02	02
2E	16	16
2F	2B	2B
30	08	08
31	00	00
32	4A	4A
33	68	68
34	02	02
35	50	50
36	02	02
37 Note 5	00 (02)	00 (02)
38	76	76
39	6A	6A
3A	80	80
3B	20	20
3C	F0	F0
3D	02	02
3E	00	
3F	00	
40	00	
41	00	
42	00	
43	00	
44	00	
45	00	
46	00	
47	00	
48	00	
49	00	
4A	00	
4B	00	
4C	00	
4D	00	
4E	00	00
4F	20	20
50	32	32
51	02	02
52	66	66
53	18	18

Table 7-1-2 (2).

Address	Adjustment data	
	Initial value	Memo column
54	6B	6B
55	9F	9F
56	66	66
57	6C	6C
58	5C	5C
59	83	83
5A	67	67
5B	5C	5C
5C	5C	5C
5D	4A	4A
5E	20	20
5F	5C	5C
60	3C	3C
61	33	33
62	0C	0C
63	26	26
64	04	04
65	02	02
66	00	00
67	00	00
68	00	00
69	00	00
6A	00	00
6B	00	00
6C	00	00
6D	00	00
6E	00	00
6F	34	34
70	10	10
71	26	26
72	0F	0F
73	0F	0F
74	02	02
75	23	23
76	1B	1B
77	E0	E0
78	A0	A0
79	28	28
7A	0D	0D
7B	50	50
7C	58	58
7D	88	88

Table 7-1-2 (3).

Address	Adjustment data	
	Initial value	Memo column
7E	66	66
7F	46	46
80	8F	8F
81	13	13
82	30	30
83	60	60
84	70	70
85	80	80
86	A0	A0
87	C0	C0
88	70	70
89	78	78
8A	80	80
8B	90	90
8C	A0	A0
8D	40	40
8E	FF	FF
8F	00	00
90	00	00
91	77	77
92	00	00
93	FB	FB
94	02	02
95	32	32
96	6B	6B
97	8D	8D
98	A1	A1
99	30	30
9A	30	30
9B	21	21
9C	91	91
9D	72	72
9E	00	00
9F	00	00
A0	00	00
A1	00	00
A2	00	00
A3	00	00
A4	02	02
A5	80	80
A6	00	00
A7	80	80

Table 7-1-2 (4).

Address	Adjustment data	
	Initial value	Memo column
A8	00	00
A9	80	80
AA	00	00
AB	80	80
AC	00	00
AD	00	00
AE	02	02
AF	87	87
B0	39	39
B1	25	25
B2	39	39
B3	25	25
B4	E2	E2
B5	4A	4A
B6	00	00
B7	20	20
B8	00	00
B9	05	05
BA	00	00
BB	20	20
BC	00	00
BD Note 5	70 (6D)	70 (6D)
BE Note 5	35 (32)	35 (32)
BF	62	62
C0 to EF	Not used	Not used
F0		
F1		
F2		
F3		
F4		
F5		
F6		
F7		
F8		
F9		
FA		
FB		
FC		
FD		
FE		
FF		

Table 7-1-2 (5).

1-1-6. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 7-1-3. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	80	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① **B (b)**	176	177	178	179	180	180	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (b d).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 7-1-3.

1-2. CAMERA SYSTEM ADJUSTMENT

1. Power Supply Voltage Check (DD board)

Subject	Option
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ㉙ of CN901
Specified value	4.9 ± 0.1 Vdc
D3.6V check	
Measurement point	Pins ㉑ and ㉒ of CN901
Specified value	3.6 ± 0.1 Vdc
CAM 5V check	
Measurement point	Pins ㉕ and ㉖ of CN901
Specified value	4.85 ± 0.1 Vdc
CAM 15V check	
Measurement point	Pin ㉗ of CN901
Specified value	15 ± 0.3 Vdc
CAM –9V check	
Measurement point	Pin ㉛ of CN901
Specified value	$-8.5^{+0.25}_{-0.4}$ Vdc

Checking method:

1) Check that each power supply voltage satisfies the specified value.

2. Page F Data Initialization

Note: It is necessary to perform all adjustments of the camera section from the beginning again if the data of page F has been initialized.

Initializing method:

1) Page: 6, address: 00, data: 01
2) Check that the data of page: 6, address: 11 is 00.
3) Set data: 2F to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 6, address: 11 is 01.
5) Set data: 00 to page: 6, address: 01. and press the PAUSE button of the adjusting remote commander.
6) After performing "Page F data modification", perform all the adjustments of the camera section (page F).

3. Page F Data Modification 1

The data (initial data) that is automatically written on page F after the initialization of the page F data will differ according to some camera micro processor versions. Change the data by manual input, and arrange it.

Note 1: When changing the data, to write the data to the non-volatile memory, press the PAUSE button of the adjusting remote commander every time the new data is set.

Note 2: When changing address: 00, set the data of page: 6, address: 00 to 80.

CCD-TR530E/TR550E/TR570E/TR750E

Address	Data
00 (SET ID)	5B [57]
20	79
21	79
27	3C
28	A2
2B	50
2F	2B
30	08
32	4A
3B	20
3D	02
50	32
77	E0
9C	91
A4	02
B1	25
B3	25
B4	E2
BD	70
BE	35
BF	62

[ ] : CCD-TR750E only

CCD-TR650E

Address	Data
00 (SET ID)	59
03	00
27	3A
28	A2
2B	50
2F	2B
30	08
32	4A
37	02
3B	20
3D	02
50	32
77	E0
9C	91
A4	02
B4	E2
BD	6D
BE	32
BF	62

[Distinguishing the Camera Micro Computer (IC602) Versions]

Each version can be distinguished by looking at the part name of the camera micro processor or the data of page: 6, address: 10.

Version	Part Name	Page: 6 Address: 10
Ver.1.0	SC424608	10

[Distinguishing the Steady Shot Control Micro Computer (IC777) Versions] (Except CCD-TR650E)

Each version can be distinguished by looking at the part name of the steady shot control micro processor or the data of page: 6, address: 30.

Version	Part Name	Page: 6 Address: 30
Ver.1.0	CXP87132-010R	01

4. 28 MHz Original Oscillation Adjustment (VC board)

Adjust the 28 MHz oscillation of the synchronization clock.
If the oscillation is not 28 MHz, the period will be inaccurate or the image will not be in color.

Subject	Not required
Measurement Point	TP709 (CL)
Measuring Instrument	Frequency counter
Adjusting Element	CT701
Specified Value	14187500 ± 70 Hz

Adjusting method:

1) Use CT701 to adjust the oscillation frequency to 14187500 ± 70 Hz.

5. V SUB Adjustment

Set the CCD imager V SUB voltage to the voltage specified for the imager.

Subject	Not required
Adjustment Page	F
Adjustment Address	04

Adjusting Method:

1) Read the V SUB voltage code of the CCD imager.
   Obtain the corresponding V SUB data from the following table.
2) Page: 6, address: 00, data: 01
3) Set the V SUB data to page: F, address: 04.
4) Press the PAUSE button of the adjusting remote commander.

V SUB			V SUB		
Voltage Code	Data	Voltagee (Vdc) *1	Voltage Code	Data	Voltagee (Vdc) *1
e	6F	9.0	g	AD	14.0
f	75	9.5	r	B3	14.5
g	7B	10.0	s	B9	15.0
h	82	10.5	t	C0	15.5
j	88	11.0	u	C6	16.0
k	8E	11.5	v	CC	16.5
l	94	12.0	w	D2	17.0
m	9A	12.5	x	D8	17.5
n	A1	13.0	y	DF	18.0
p	A7	13.5	z	E5	18.5

*1: The V SUB voltages (TP703) given are reference values.

6. VRG Adjustment

Set the CCD imager V RG voltage to the voltage specified for the imager.

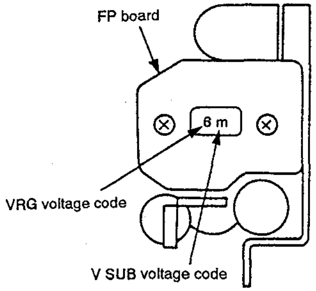
Subject	Not required
Adjustment Page	F
Adjustment Address	05

Adjusting Method:

1) Read the VRG voltage code of the CCD imager.
   Obtain the corresponding VRG data from the following table.
2) Page: 6, address: 00, data: 01
3) Set the VRG data to page: F, address: 05.
4) Press the PAUSE button of the adjusting remote commander.

VRG		
Voltage Code	Data	Voltage (Vdc) *2
1	33	1.0
2	4E	1.5
3	69	2.0
4	84	2.5
5	9F	3.0
6	BA	3.5
7	D5	4.0

*2: The VRG voltages (TP707) given are reference values.



(Example) When "6m" is displayed:
The V SUB voltage code is "m" and therefore the V SUB data will be "9A".
The VRG voltage code is "6" and therefore the VRG data will be "BA".

Fig. 7-1-7.

7. Flange Back Adjustment

The flange back adjustment for the inner focus lens is performed automatically.

Subject	Chart for flange back adjustment (2000 ± 5 mm from the front side of the lens Luminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	16, 17, 18, 19, 1A, 1B

Adjusting method:

1) Check that the flange back adjustment chart center and the exposure display center coincide at both zoom lens TELE end and WIDE end.
2) Page: 6, address: 00, data: 01
3) Check that the data of page: 6, address: 21 is 00.
4) Check that the page: F, address: 16 to 1B data is at the initial value. (Refer to Table 7-1-2. "Page F address list")
5) Set data: 13 to page: 6, address: 01 and press the PAUSE button of the adjusting remote commander.
6) Set data: 15 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
   (The adjustment data is automatically input to page: F, addresses: 16 to 1B.)
7) Check that the data of page: 6, address: 21 is 01.
   (Display indicating flange back adjustment completion)

Processing after completing adjustments

1) Turn off the main power supply (6.3V).

8. Flange Back Check

Subject	Siemens star (2m from the front of the lens)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Checking method:

1) Place the Siemens star 2m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appears on the image.
3) Shoot the siemens star with the zoom TELE end.
4) Turn ON the auto focus.
5) When the lens is focused, turn OFF the auto focus. (Note 2)
6) Shoot the siemens star with the zoom WIDE end.
7) Check that the lens is focused.

Note 1: Input the following data for CCD-TR530E/TR550E/TR570E/TR750E.
1) Set data: 02 to page: 6, address: 32.
2) Set data: 01 to page: 6, address: 33.

Note 2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on page A of the adjusting remote commander.
1) Set data: 0C to page: 6, address: 02.
2) Page A shows the state of the focus.

A : 00 : XX → (Odd: Focused
Even: Unfocused)

Processing after compleating adjustments

1) Set data: 00 to page: 6, address: 02.

For CCD-TR530E/TR550E/TR570E/TR750E

2) Set data: 00 to page: 6, address: 32.
3) Set data: 00 to page: 6, address: 33.

9. HALL Adjustment

To eliminate the differences in the outputs of the hall element attached to the iris for detecting the position of the lens iris, adjust the hall AMP gain and hall offset.

Subject	Not required
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	06, 07
Specified Value	32 to 36 during IRIS OPEN B4 to B8 during IRIS CLOSE

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Page: 1, address: 00, data: 01
3) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
4) Set data: 03 to page: 6, address: 02.
5) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 80 to page: F, address: 07, and press the PAUSE button of the adjusting remote commander.
7) Set data: 40 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
8) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and set to W_2.
9) Set data: 30 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
10) Read the DDS display data, and set to W_1.
11) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data, and set to K_1.
13) Set data: 40 to page: F, address: 06, and press the PAUSE button.
14) Read the DDS display data, and set to K_2.
15) Convert W_1, W_2, K_1, K_2 to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to Table 7-1-3. "Hexadecimal notation-decimal notation conversion table".)
16) Calculate X_1' using the following equations (decimal notation calculation).
    $A'=W_2'+K_1'-W_1'-K_2'$ ··························Equation 1
    $B'=W_1'-K_1'$ ··Equation 2
    $X1'=\dfrac{2080+(48\times A')-(16\times B')}{A'}$ ················Equation 3
17) Convert X_1' to hexadecimal notation, and obtain X_1.
    (Round off to one decimal place)
18) Set data: X_1 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
19) Change the data of page: F, address: 07, and adjust the DDS display data to "34".
20) Press the PAUSE button of the adjusting remote commander.
21) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
22) Read the DDS display data, and set to W_0. If W_0 lies within the "B4" to "B8" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
23) Convert W_0 to hexadecimal notation, and obtain W_0'.
24) Calculate X_2' using the following equations (decimal notation calculation).
    $C'=W_0'-B'-52$ ··································Equation 4
    $X_2'=\dfrac{(130-B')\times(X_1'-48)+48\times C'}{C'}$ ···········Equation 5
    (X_1' and B' are values obtained from equations 2 and3)
25) Convert X_2' to hexadecimal notation and obtain X_2.
    (Round off to one decimal place)
26) Set data X_2 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
27) Change the data of page: F, address: 07, and adjust the DDS display data to "B6".
28) Press the PAUSE button of the adjusting remote commander.
29) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
30) Check that the DDS display data lies within the "32" to "36" range.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Page D protect mode setting.
   Page: 1, address: 00, data: 00

10. SYNC Level Check (VC board)

Subject	Not required
Measurement Point	TP607
Measuring Instrument	Oscilloscope
Specified Value	A=150 ± 10 mV

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the SYNC level (A) satisfies the specified value.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

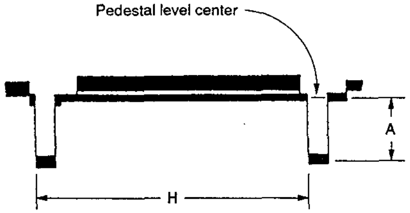


Fig. 7-1-8.

11. BURST Level Check (VC board)

Subject	Not required
Measurement Point	TP609
Measuring Instrument	Oscilloscope
Specified Value	A=150 ± 15 mVp-p

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the Burst level (A) satisfies the specified value.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

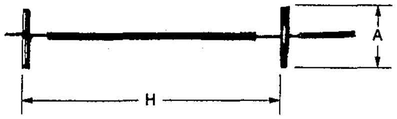


Fig. 7-1-9.

12. Picture Frame Setting

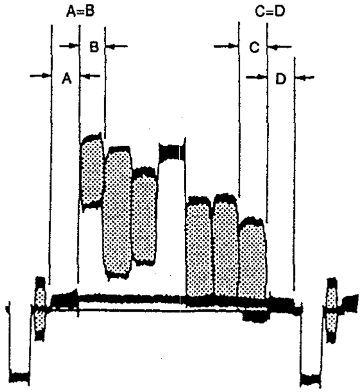
Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A=B, C=D, t=0 ± 0.1 msec

Setting method:

1) Turn the auto focus off.
2) Adjust the focus.
3) Adjust the zoom and the camera direction, and set to the specified position.
4) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame".

Check on the oscilloscope

1. horizontal period



2. Vertical period

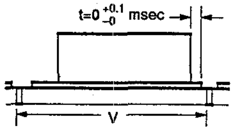


Fig. 7-1-10.

Check on the TV monitor

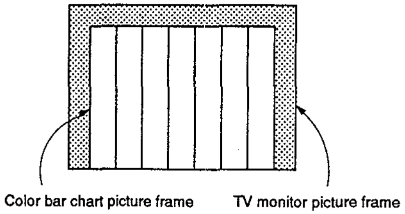


Fig. 7-1-11.

13. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that the proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	08, 09, 0A, 0B
Specified Value	All color luminance points should settle within each color reproduction frame.

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Set data: 00 to page: 6, address: 03.
3) Set data: F1 to page: F, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of addresses 08, 09, 0A and 0B of page: F, and settle each color luminance point in each color reproduction frame.
   Note 1: Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses.
   If not, the new data will not be written to the memory.
6) Press the PAUSE button of the adjusting remote commander.

Processing after completing adjustments

1) Set data: E0 to page: F, address: 10 and press the PAUSE button of the adjusting remote commander.
2) Set data: 10 to page: 6, address: 03.

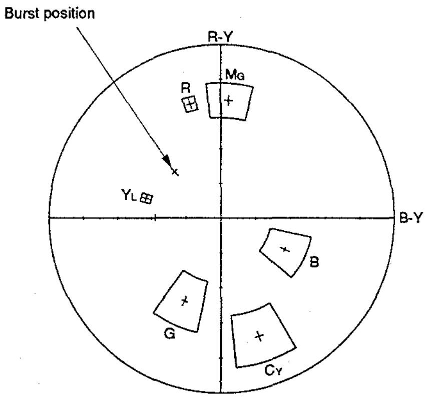


Fig. 7-1-12.

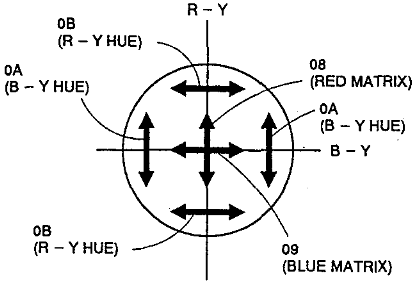


Fig. 7-1-13. Direction of the Movements of the Adjustment Address and Luminance Point

14. IRIS IN/OUT Adjustment (VC board)

For the unit to judge if the white balance is indoors or outdoors in auto white balance operations, measure the light level and write it in the EEPROM.
If the level is not correct, the white balance will not be accurate.

Subject	White pattern
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	13, 14

Adjusting method:
1) Page: 6, address: 00, data: 01
2) Page: 1, address: 00, data: 01
3) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
4) Set data: 0E to page: 6, address: 02.
5) Set data: 0B to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Read the DDS display data (Note 1), and take the upper two digits as D_1 and the lower two as D_2.
7) Convert D_1 to a decimal number and obtain D_1'. (Refer to Table 7-1-3. "Hexadecimal Notation-Decimal Notation Conversion Table".)
8) Calculate D_3' using the following equations. (Equations 1 and 2 are for decimal notation calculation)
   When $D_2 \geqq D0$
   $D_3'=D_1'-21$ ··························Equation 1
   When $D_2 < D0$
   $D_3'=D_1'-22$ ··························Equation 2
9) Convert D_3' to a hexadecimal number and obtain D_3.
10) Set D_3 to page: F, address: 13, and press the PAUSE button of the adjusting remote commander.
11) Set data: 09 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data (Note 1), and take the upper two digits as D_4 and the lower two as D_5.
13) Convert D_4 to a decimal number and obtain D_4'. (Refer to Table 7-1-3. "Hexadecimal Notation-Decimal Notation Conversion Table".)
14) Calculate D_6' using the following equations. (Equations 3 and 4 are for decimal notation calculation)
   When $D_5 \geqq F0$
   $D_6'=D_4'-13$ ··························Equation 3
   When $D_5 < F0$
   $D_6'=D_4'-14$ ··························Equation 4
15) Convert D_6' to a hexadecimal number and obtain D_6.
16) Set D_6 to page: F, address: 14, and press the PAUSE button of the adjusting remote commander.

Note 1: The right four digits of the display data at the right bottom side of the EVF and monitor TV is the LIGHT LEVEL data. If the lower digits change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the average value.

Processing after Completing Adjustments
1) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 1, address: 00.
3) Set data: 00 to page: 6, address: 00, and press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 6, address: 02.

15. MAX GAIN Adjustment (VC board)

Correct the differences in the minimum illuminance.
If the illuminance is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	White pattern standard picture frame
Measurement Point	TP607 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	15
Specified Value	CCD-TR530E/TR550E/TR570E/ TR750E A=175 ± 10 mV CCD-TR650E A=210 ± 10 mV

Adjusting method:
1) Page: 6, address: 00, data: 01
2) Set data: 19 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 15, and adjust so that the Y OUT signal level (A) becomes the specified value.
   Note: The data of address: 15 should be 70 to FF.
4) Press the PAUSE button of the adjusting remote commander.

Processing after completing adjustments
1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

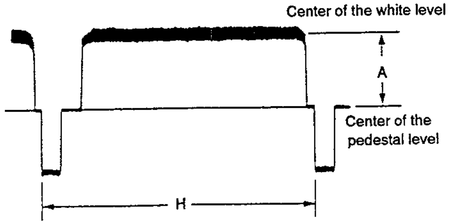


Fig. 7-1-14.

16. Auto White Balance Standard Data Input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	0C, 0D, 0E, 0F

Adjusting method:
1) Turn the power of the unit OFF/ON.
2) Page: 6, address: 00, data: 01
3) Check that the data of page: 6, address: 11 is 00.
4) Wait for 2 seconds.
5) Set data: 11 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 0D to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
   (When the standard data is taken in, the data will be automatically input to addresses 0C to 0F of page F.)
7) Check that the data of page: 6, address: 11 is 01.

Processing after completing adjustments
1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

17. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	11 (NORM R) 12 (NORM B)
Specified Value	CCD-TR650E R ratio: 2A40 to 2AC0 B ratio: 5E00 to 5F00 CCD-TR530E/TR550E/TR570E/ TR750E R ratio: 2B40 to 2BC0 B ratio: 5E00 to 5F00

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Page: 1, address: 00, data: 01
3) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
4) Page: 6, address: 00, data: 01
5) Set data: D0 to page: F, address: 10, and press the PAUSE button of the adjusting remote commander.
6) Set data: 04 to page: 6, address: 02.
7) Change the data of page: F, address: 11, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to the R ratio specified value.
8) Press the PAUSE button of the adjusting remote commander.
9) Set data: 05 to page: 6, address: 02.
10) Change the data of page: F, address: 12, and adjust the average value of the DDS display data to the B ratio specified value.
11) Press the PAUSE button of the adjusting remote commander.

Processing after completing adjustments

1) Set data: 00 to page: F, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 6, address: 02.
4) Page D protect mode setting.
   Page: 1, address: 00, data: 00

18. White Balance Check

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 7-1-15. A to C

Checking method:

1) Check that the lens is not covered with either filter.
2) Page: 6, address: 00, data: 01
3) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the center of the white luminance point is within the circle shown in Fig. 7-1-15.A.
5) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 23 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Place the C14 filter on the lens.
8) Check that the center of the white luminance point settles in the circle shown in Fig. 7-1-15. B.
9) Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) on the lens.
10) Check that the center of the white luminance point settles in the circle shown in Fig. 7-1-15. C.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 6, address: 00, and press the PAUSE button.

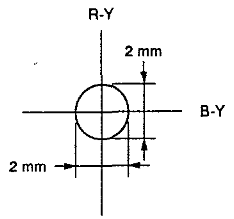


Fig. 7-1-15. A

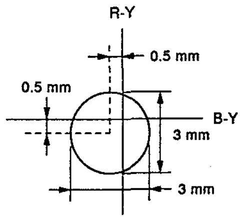


Fig. 7-1-15. B

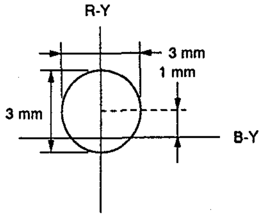


Fig. 7-1-15. C

19. VIDEO OUT Level Check

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal (Terminated at 75 Ω)
Measuring Instrument	Oscilloscope
Specified Value	Y level=660 ± 40 mV SYNC level=300 ± 20 mV BURST level=300 ± 20 mV

Checking method:

1) Check that the Y level, SYNC level and BURST level satisfy the specified values.

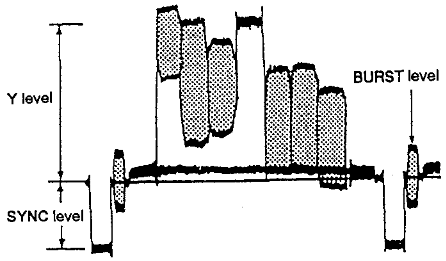


Fig. 7-1-16.

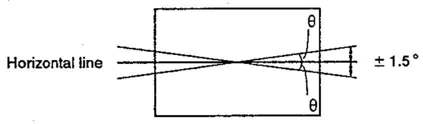
1-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS (VF-65 BOARD)

1-3-1. Horizontal Slant Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Specified Value	± 1.5°

Adjusting method:

1) Adjust RV904 (BRIGHT) so that the CRT can be seen easily and clearly.
2) Loosen the DY (deflection yoke) tightening screw.
3) Rotate DY, and adjust the image so that it is horizontal.
4) Tighten the DY tightening nut. (Do not tighten it too tightly.)



Specified value: The image should be within ± 1.5° of the horizontal line.

Fig. 7-1-17.

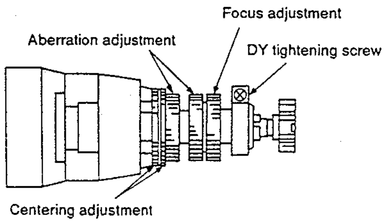


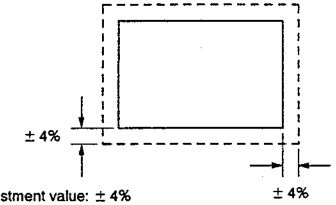
Fig. 7-1-18.

1-3-2. Centering Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Specified Value	± 4%

Adjusting method:

1) Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. (Refer to Fig. 7-1-18.)
   Note: As the centering position changes due to earth magnetism, rotate it 360 ° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value: ± 4%

Fig. 7-1-19.

1-3-3. Focus Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section

Adjusting method:

1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 7-1-18.)

1-3-4. Aberration Adjustment

Model	E-E
Signal	Dot pattern
Specified Value	T < 2 • D, F < D

Adjusting method:

1) Adjust the aberration adjustment ring so that the tracing of the dot becomes less than twice the diameter of the dot, or the fan aberration becomes less than the diameter of the dot.
2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

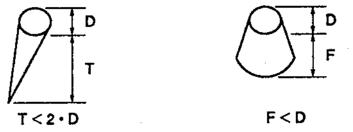


Fig. 7-1-20.

1-3-5. Horizontal Amplitude Adjustment (VF-65 board)

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Adjusting Element	C909
Specified Value	6 ± 2%

Adjusting method:

1) Rotate RV903, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
2) Rotate RV904 so that the brightness is the normal level.
3) Adjust the pattern (A) of the H size adjustment capacitor (C909) to "short" or "open", so that the horizontal direction over scan becomes 6 ± 2% (Left and right totals). (Refer to Fig. 7-1-22.)

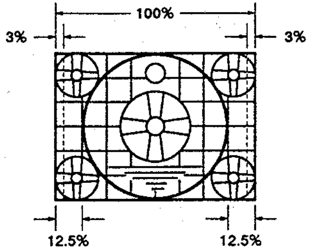
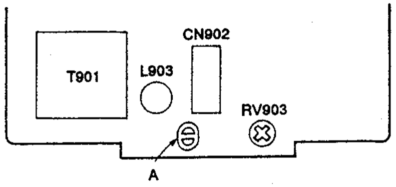


Fig. 7-1-21.



VF-65 board (Component side)

Section A	Size H
Open	Small
Short	Big

Fig. 7-1-22.

1-3-6. Vertical Amplitude Adjustment (VF-65 board)

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Adjusting Element	RV903
Specified Value	5 ± 2%

Adjusting method:

1) Adjust RV903 so that the vertical direction over scan becomes 5 ± 2% (Top and bottom totals).

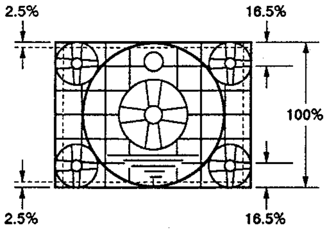


Fig. 7-1-23.

1-3-7. Brightness Adjustment (VF-65 board)

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Adjusting Element	RV904

Adjusting method:

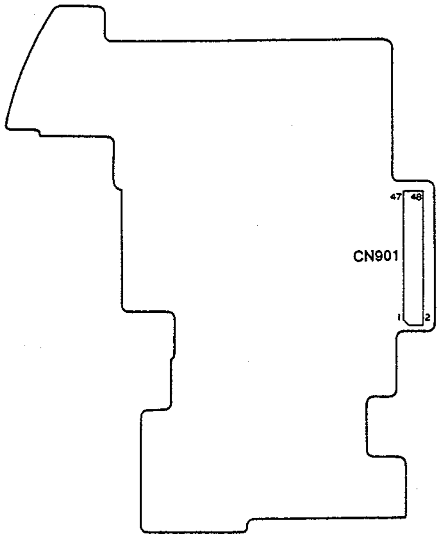
1) Rotate RV904, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section and the second darkest section of the gray scale cannot be differentiated.)

1-3-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

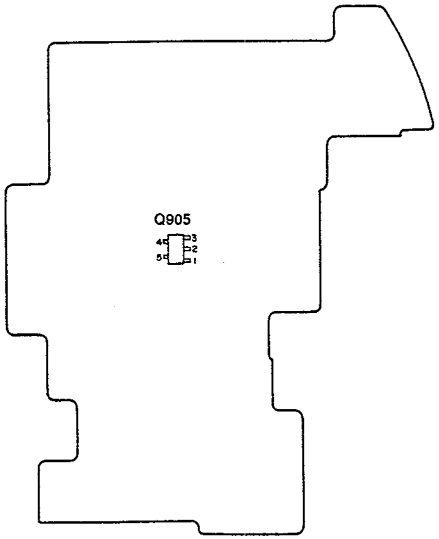
"1-3-5. Horizontal Amplitude Adjustment" and "1-3-6. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform [1-3-7. Brightness, Contrast Adjustments] again. Moreover, check the focus, and if it found to be vague, perform "1-3-3. Focus Adjustment" and "1-3-4. Aberration Adjustment".

1-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

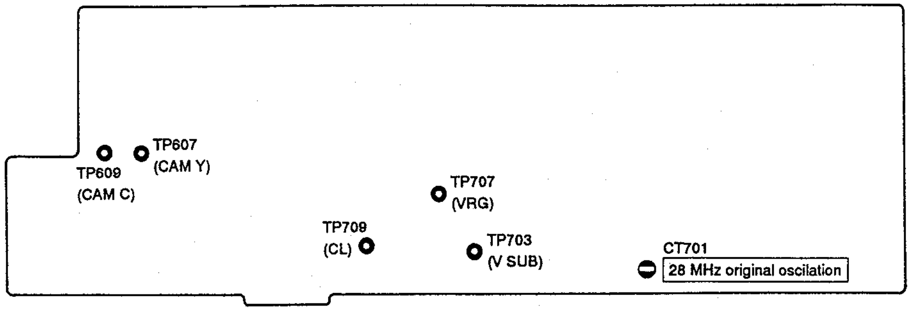
DD BOARD (CONDUCTOR SIDE)


47
48
CN901
1
2

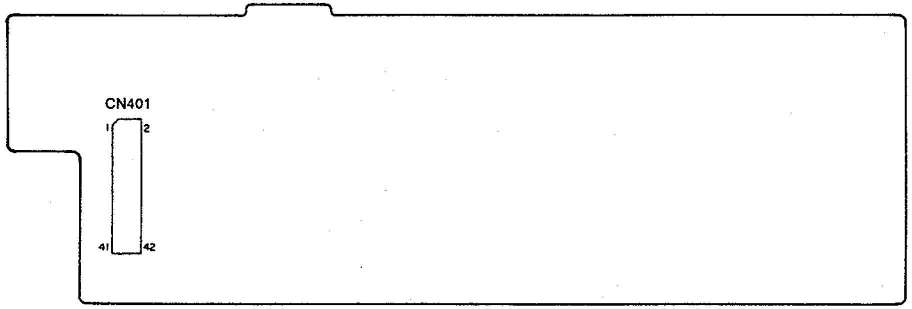
DD BOARD (COMPONENT SIDE)



VC BOARD (COMPONENT SIDE)

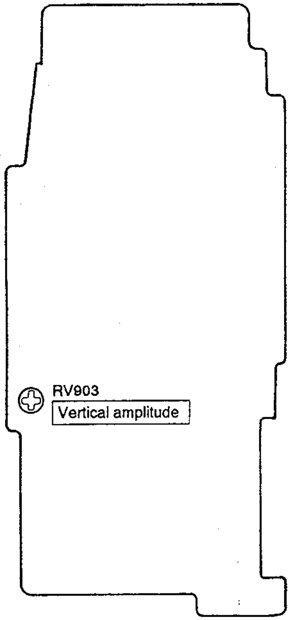

TP607
(CAM Y)
TP609
(CAM C)
TP707
(VRG)
TP709
(CL)
TP703
(V SUB)
CT701
28 MHz original oscilation

VC BOARD (COMPONENT SIDE)

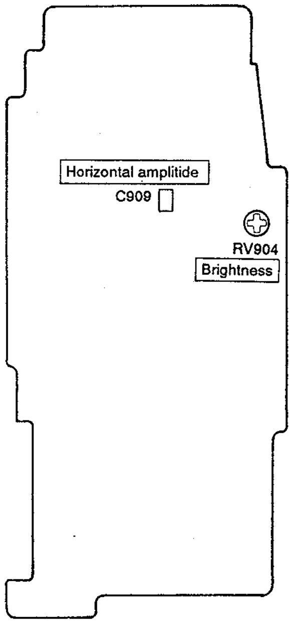

CN401
1
2
41
42

CCD-TR530E/TR550E/TR650E/TR750E

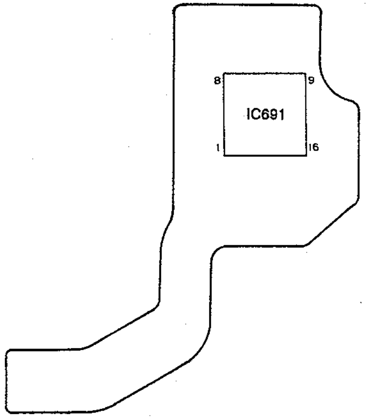
VF-65 BOARD (COMPONENT SIDE)


RV903
Vertical amplitude

VF-65 BOARD (CONDUCTOR SIDE)


Horizontal amplitide
C909
RV904
Brightness

FP-89 BOARD


8
9
IC691
1
16

7-2. MECHANICAL SECTION ADJUSTMENTS

Mechanism Parts Adjustments

For details on the adjustments and checks of mechanical section and replacements of mechanism parts, refer to the separate volume-"8 mm Video Mechanism Adjustment Manual IV A Mechanism".

2-1. OPERATING WITHOUT A CASSETTE

1) Refer to "2. DISASSEMBLY" and supply the power with the cabinet removed. (So that the mechanical deck can be operated.)
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Set data: 01 to page: 1, address: 00.
   (Release of the protect)
6) Set data: 01 to page: D, address: 02, and press the PAUSE button of the adjusting remote commander.
   (Emergency prohibition mode setting)
7) Set data: 04 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
   (Sensor ineffective mode setting)

By carrying out the above procedure, the unit can be operated without loading a cassette.
Be sure to carry out "Processing after Operations" after checking the operations.
Set the data of page: D, address: 03 to the following if the sensor ineffective mode, forced VTR power supply ON mode or forced camera power supply ON mode are to be used together.

Forced VTR power supply ON mode········· 06
Forced camera power supply ON mode······ 05

[Processing after Operations]

1) Set data: 01 to page: 1, address: 00.
   (Release of protect)
2) Set data: 00 to page D, address: 02, and press the PAUSE button of the adjusting remote commander.
   (Release of the emergency prohibition mode)
3) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
   (Release of the sensor ineffective mode)
4) Set data: 00 to page: 1, address: 00.
   (Protect setting)
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments

1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 1, address: 00, and set data: 01.
   (Release of the protect)
5) Select page: D, address: 01, and set data: 03.
   (Set the track shift mode. The adjusting remote commander can be disconnected if its PAUSE button of remote commander is pressed. In this case, be sure to perform "Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
   Channel 1-Pin ③ of CN102 of VS board
   External trigger-Pin ④ of CN102 of VS board
   (Connect the oscilloscope via the measuring pin tool for the video section (J-6082-140-A).)
7) Playback the alignment tape (WR5-1CP) for tracking.
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
   If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment Manual IV (A Mechanism).
9) Perform "Processing after operations", after completing adjustments.

CN102 of VS board

1	PB CH RF
2	PB PCM RF
3	PB RF
4	RF SWP
5	RP GND
6	REC 2

(Processing after operations)

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 1, address: 00, and set data: 01.
3) Select page: D, address: 02, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Remove the power supply from the unit.

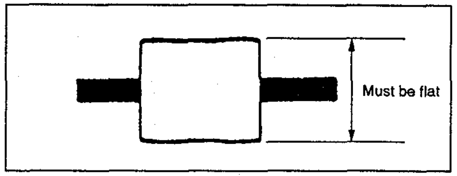


Fig. 7-2-1.

7-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 7–88.

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

3-1-1. Equipments to be Used

1) TV monitor
2) Oscilloscope: 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuater
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1CP)
      Part Code: 8-967-995-07
    - For Hi8 mode video frequency characteristics adjustment (WR5-7CE)
      Part Code: 8-967-995-18
    - For checking normal mode operations
      For SP (WR5-5CSP)
      Part Code: 8-967-995-47
      Or (WR5-4CSP)
      Part Code: 8-967-995-46
      For LP (WR5-4CL)
      Part Code: 8-967-995-56
      For checking AFM stereo operations (WR5-9CS)
      Part Code: 8-967-995-28
    - For checking Hi8 mode operations (ME tape)
      For SP (WR5-8CSE)
      Part Code: 8-967-995-48
      For LP (WR5-8CLE)
      Part Code: 8-967-995-57
12) remote commander for adjustment (J-6082-053-A)
13) VC board extension cord (42P, 0.8 mm)
    Part Code: J-6082-285-A
14) Control switch Block (FK board) extension cord (9P, 0.8 mm)
    Part Code: J-6082-288-A
15) Control switch Block (CK board) extension cord (18P, 0.8 mm)
    Part Code: J-6082-289-A
16) AU-165 board extension cord (34P, 0.8 mm) (CCD-TR570E/TR650E/TR750E)
    Part Code: J-6082-286-A
17) PJ-61 board extension cord (12P, 0.8 mm)
    Part Code: J-6082-287-A

3-1-2. Adjusting Precautions

1) The adjustment for this unit is performed using the VIDEO input (VIDEO terminal input) or the camera input. The camera input can be used for video adjustments only. Use the VIDEO input for the other adjustments.

   When using the VIDEO input, set the power supply switch to "PLAYER" or set the "forcible VTR power supply ON mode" using the adjusting remote commander. (Note 1).

   When using the camera input, set the power supply switch to "CAMERA" or set the "Forcible camera+VTR power supply ON mode" using the adjusting remote commander (Note 2).

   After completing adjustments, be sure to exit the "forcible VTR power supply ON mode" or "forcible camera+VTR power supply ON mode" (Note 3).

2) The F panel block (MA board) is not used for video adjustments. Disconnect the following connectors in these adjustments.
   1. CN1301 of the AU board
3) The view finder (VF board) is not used for video adjustments. Disconnect the following connector in these adjustments.
   1. CN206 of the VS board (4P, 0.5 mm)
4) The cabinet (R) (CK board: Power supply switch, camera function switch) need not be connected if the "forcible VTR power supply ON mode" or "forcible camera+VTR power supply ON mode" is set. In this case, disconnect the following connectors.
   1. CN503 of the VS board (18P, 0.8 mm)
   2. CN101 of the ZB board (4P, 0.8 mm)
   3. CN501 of the VS board (24P, 0.8 mm)
      (CCD-TR750E)

   However, as disconnecting these connectors means disconnecting the 3V lithium power supply, data set by the user such as the date, time, and menu will be lost. After completing the adjustments, set these data again, and be sure to exit the "forcible VTR power supply ON mode" or "forcible camera+VTR power supply ON mode". (Note 3)

   When connecting the cabinet (R) using the extension cord, use the following type.
   1. J-6080-289-A (18P, 0.8 mm)

5) The lens block and VC board are not used for video adjustments. Disconnect the following connectors in these adjustments.
   1. CN203 of the VS board (42P, 0.8 mm)
   2. CN775 of the VC board (8P, 0.8 mm)
      (Except CCD-TR650E)

   Connect the following when removing the VC board.
   1. Connect Pin ㉒ (REG H) and Pin ⑦ (D3.6V) of CN203 of the VS board with a jumper wire.

   When connecting the VC board using the extension cord, use the following type.
   1. J-6080-285-A (42P, 0.8 mm)
6) The audio board (AU board) is required only for audio adjustments. When not using it, disconnect the following connector.
   1. CN202 of the VS board

   When connecting the AU-165 board (CCD-TR570E/TR650E/TR750E) using the extension cord, use the following type.
   1. J-6080-286-A (34P, 0.8 mm)
7) When opening the VS board, disconnect the following connectors.
   1. CN502 of the VS board (9P, 0.8 mm)

   The VTR function keys will not work. Use the remote commander to perform operations other than EJECT.

   When connecting the FK board and CN502 of VS board using the extension cord, use the following type.
   1. J-6080-288-A (9P, 0.8 mm)

   When connecting the CN1502 of PJ-61 board and CN204 of VS board using the extension cord, use the following type.
   1. J-6080-287-A (12P, 0.8 mm)

Note 1: Setting the "forcible VTR power supply ON mode (VIDEO input mode)"
1) Set data: 01 to page: 1, address: 00.
   (Releasing the page D protect)
2) Set data: 02 to page: D, address: 03 and press the PAUSE button of the adjusting remote commander.
   (Setting the forcible VTR power supply ON mode)

By performing the above, the VTR can be operated with the cabinet (R) removed. After completing adjustments, be sure to exit the "forcible power supply ON mode".

Note 2: Setting the "forcible camera+VTR power supply ON mode (camera input mode)"
1) Set data: 01 to page: 1, address: 00.
   (Releasing the page D protect)
2) Set data: 03 to page: D, address: 03 and press the PAUSE button of the adjusting remote commander.
   (Setting the forcible camera+VTR power supply ON mode)

By performing the above, the VTR can be operated with the cabinet (R) removed. After completing adjustments, be sure to exit the "forcible power supply ON mode".

Note 3: Exiting the "forcible power supply ON mode"
1) Set data: 01 to page: 1, address: 00.
   (Releasing the page D protect)
2) Set data: 00 to page: D, address: 03 and press the PAUSE button of the adjusting remote commander.
   (Setting the forcible power supply ON mode)
3) Set data: 00 to page: 1, address: 00.
   (Setting the page D protect)

3-1-3. Connecting the Equipments

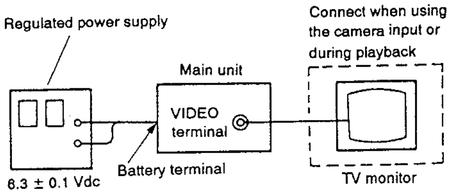
Connect the measuring instruments as shown in Fig. 7-3-1. according to the input terminal specifications (VIDEO input or CAMERA input), and perform the adjustments.

The input terminal is specified in the ( ) in the signal column. Either input terminal can be used when there are no specifications.

Note 1: If the VIDEO input is used for the adjustments which specify for the CAMERA input to be used, the product specifications of the unit may not be satisfied in some cases. Be sure to perform according to the specifications.

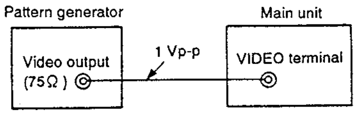
Note 2: When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by VTR. It is recommendet that a pattern generator with a Y/C separation output terminal be used as much as possible.

Connecting the TV monitor and requlated power supply


Regulated power supply
Connect when using the camera input or during playback
Main unit
VIDEO terminal
Battery terminal
6.3 ± 0.1 Vdc
TV monitor

Connecting the pattern generator

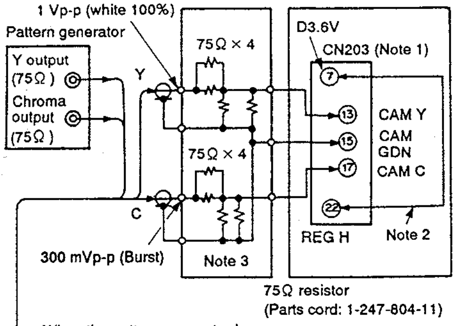
[VIDEO Input]
Set the power supply switch to "PLAYER" or set the "forcible VTR power supply ON mode" using the adjusting remote commander.


Pattern generator
Main unit
Video output (75Ω)
1 Vp-p
VIDEO terminal

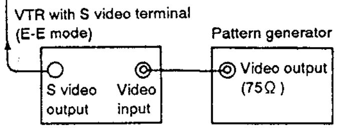
Note: The TV monitor cannot be connected.
Use the view finder to monitor.

[CAMERA Input]
Set the power supply switch to "CAMERA" or set the "forcible camera+VTR power supply ON mode" using the adjusting remote commander.

- When the pattern generator has a Y/C separation output terminal


1 Vp-p (white 100%)
Pattern generator
Y output (75Ω)
Chroma output (75Ω)
Y
C
75Ω × 4
75Ω × 4
300 mVp-p (Burst)
Note 3
VS board
D3.6V
CN203 (Note 1)
⑦
⑬
⑮
⑰
㉒
CAM Y
CAM GDN
CAM C
REG H
Note 2
75Ω resistor
(Parts cord: 1-247-804-11)

- When the pattern generator has no Y/C separation output terminal


VTR with S video terminal
(E-E mode)
Pattern generator
S video output
Video input
Video output (75Ω)

Note 1: Remove the VC board.
Note 2: Connect Pins ⑦ and ㉒ of CN203 with the jumper wire.
Note 3: The chroma signal input is not required for some adjustments.

Fig. 7-3-1.

3-1-4. How to Set the REC Mode in the Model with out REC switch (Except CCD-TR750E E, Australian model)

1) REC key forbidden accept mode cancel
   1. Connect the adjusting remote commander to the remote terminal.
   2. Turn on the power.
   3. Turn on the HOLD switch of the adjusting remote commander.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 17, and set the data to 16 [17].[Note 1]
      (REC key forbidden accept mode cancel)
   6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

The REC key is accepted through the above procedure.

2) REC mode setting
   1. Turn off the HOLD switch of the adjusting remote command-er.
   2. Press REC buttons of the adjusting remote commander.
   3. Perform "3. Procedure after completed the adjustment", after completing adjustment.

3) Procedure after completed the adjustment
   Be sure to return the mode to REC key forbidden accept mode after adjustment.
   1. Connect the adjusting remoter controller.
   2. Turn on the power.
   3. Turn on HOLD switch of the adjusting remote commander.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 17, and set the data to 06 [07].[Note 1]
      (Setting of the REC key forbidden accept mode)
   6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)
   7. Turn off the power.

Note 1: No mark : AEP, UK model
[ ] : E, Australian, Tourist model (Except CCD-TR750E)

3-1-5. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. CAMERA Input

Connect the oscilloscope to Pin ⑬ of CN203 on VS board, and check that the sync signal of the Y signal is approximately 0.15 Vp-p and that the amplitude of the video section is approximately 0.35 Vp-p. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to Pin ⑰ of CN203 on VS board, and check that the burst signal amplitude of the chroma signal is approximately 0.15 Vp-p and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30:0.66. The Y and chroma signals used in the adjustment are shown in Fig. 7-3-2.

Note: Be sure to check in the recording mode.

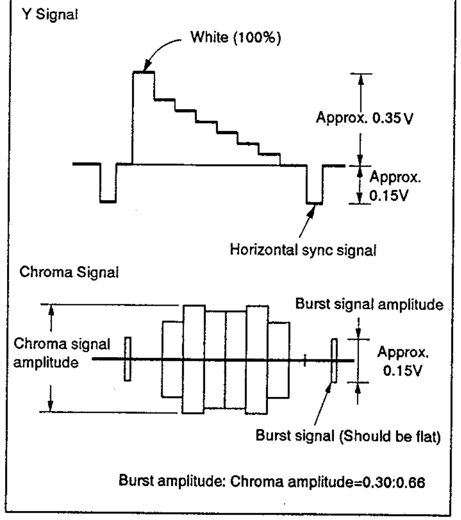

Y Signal
White (100%)
Approx. 0.35V
Approx. 0.15V
Horizontal sync signal
Chroma Signal
Burst signal amplitude
Chroma signal amplitude
Approx. 0.15V
Burst signal (Should be flat)
Burst amplitude: Chroma amplitude=0.30:0.66

Fig. 7-3-2. Color Bar Signal of Pattern Generator

2. VIDEO Input

Connect the oscilloscope to the video input/output terminal, and check that the sync signal amplitude of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30:0.66.
The video signal (color bar) used for adjusting the VTR section is shown in Fig. 7-3-3.

Note: Be sure to check in the record mode.

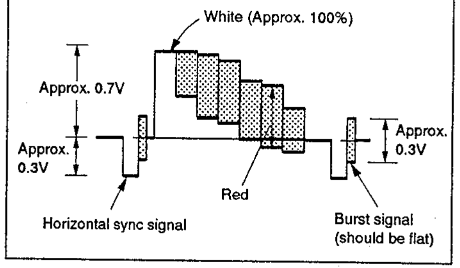

White (Approx. 100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 7-3-3. Color Bar Signal of Pattern Generator

3-1-6. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment.

If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Record-ing mode	Tape type	Tape speed	Recording contents		Usage
				Video area	PCM area	
Tracking WR5-1CP	L	MP	SP	CH2: Signal for 1 MHz tape path adjustment		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	E	ME	LP	RF sweep 0 to 15 MHz Marker 2, 4.5, 7, 8.5, 10 MHz		Frequency characteristics adjustment
Video frequency characteristics WR5-2C	L	MP	LP	RF sweep Marker 1, 3.58, 5.5, 7 MHz		
Operation check (SP mode) WR5-5CSP	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation	• Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. 14 kHz 20 sec. } Repeated 4 times Color bar section 1 kHz 4 minutes	Checking operations
Operation check WR5-8CSE	E	ME	SP		• Audio signal (PCM) 400 Hz	
Operation check WR5-4CL	L	MP	LP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation		
Operation check WR5-8CLE	E	ME	LP		• Audio signal (PCM) 400 Hz	
AFM stereo Operation check WR5-9CS	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) Stereo section (color bar) Lch: 400 Hz, Rch: 1 kHz (L+R: 1.5 MHz ± 60 kHz DEV L–R: 1.7 MHz ± 30 kHz DEV) Bilingual section (Monoscope) MAIN: 400 Hz (1.5 MHz ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz 8 minutes	AFM stereo Checking operations

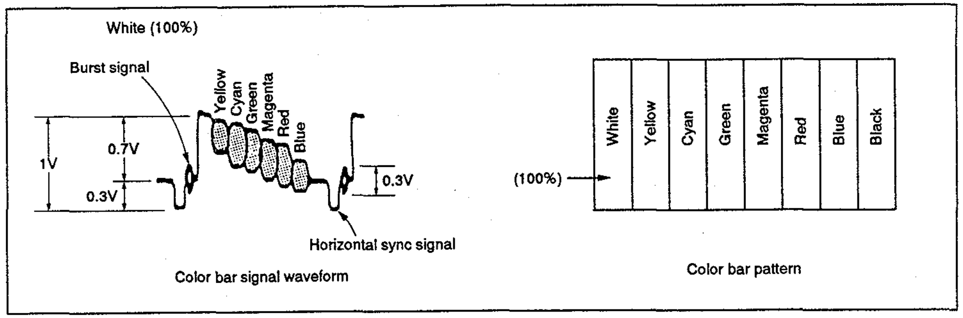
Note: Recording mode
L ·············· Normal (Original) mode
E ·············· hi8 (hi band) mode

Tape type
MP············ Particle type metal tape
ME············ Evaporated type metal type

Table 7-3-1.

Fig. 7-3-4. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal (Terminated at 75 Ω)



Color bar signal waveform

Color bar pattern

Fig. 7-3-4. Color Bar Signals of the Alignment Tape

3-1-7. Input/Output Level and Impedance

1. CCD-TR530E/TR550E/TR570E/TR650E,
   CCD-TR750E (AEP, UK model)

S video output (CCD-TR650E/ TR750E)	4-pin mini DIN Luminance signal: 1 Vp-p, 75Ω , unbalanced, sync negative
Video output	Phono jack, 1 Vp-p, 75Ω , unbalanced, sync negative
Audio output	Phono jack, –7.5 dBs, (at load impedance 47 kΩ) impedance less than 2.2 kΩ

2. CCD-TR750E (E, Australian model)

S video input/output	4-pin mini DIN, Luminance signal: 1 Vp-p, 75Ω , unbalanced, sync negative Chrominance signal: 0.286 Vp-p, 75Ω , unbalanced
Video input/output	Phono jack, 1 Vp-p, 75Ω , unbalanced, sync negative
Audio input/output	Phono jack, Input: –7.5 dBs, input impedance more than 47 kΩ Output: –7.5 dBs, (at load impedance 47 kilΩ), impedance less than 2.2 kΩ

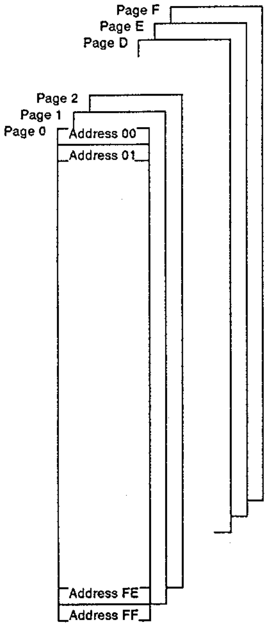
3-1-8. Service Mode

1. Setting the service mode

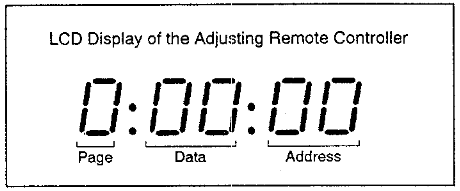
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.

The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

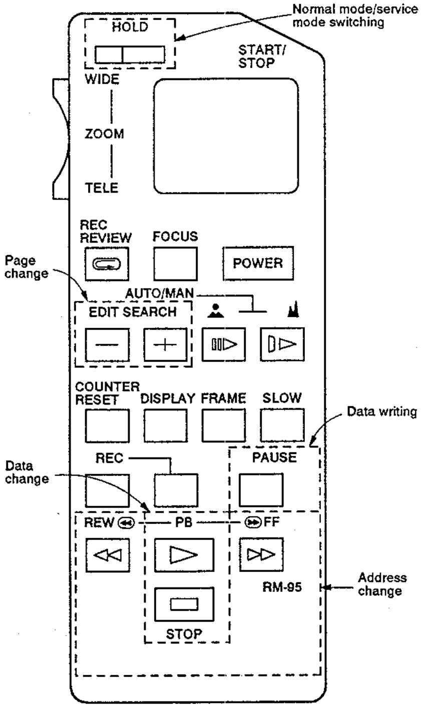
(1) Service LANC memory map


Page F
Page E
Page D
Page 2
Page 1
Page 0
Address 00
Address 01
Address FE
Address FF

Page	Page Layout
0	
1	D page write protect setting/release
2	Mode controller RAM, I/O
3	Mechanism controller RAM, I/O
4	
5	
6	Shared by camera section
7	Camera controller RAM, I/O
8	
9	
A	2 bytes data display
B	
C	
D	VTR EEPROM (Note 1)
E	
F	Camera EEPROM (Note 2)


LCD Display of the Adjusting Remote Controller
0:00:00
Page
Data
Address

Adjusting remote commander RM-95 (J-6082-053-A)


HOLD
Normal mode/service mode switching
START/STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page change
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
Data writing
REC
PAUSE
Data change
REW
PB
FF
RM-95
Address change
STOP

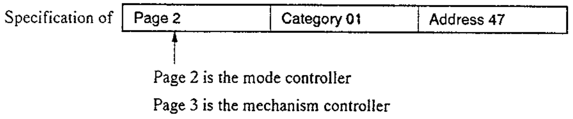
Note 1: The data of this page is written in the EEPROM (IC501 of VS board).

Note 2: The data of this page is written in the EEPROM (IC601 of VC board).

(2) Category codes

This unit uses category codes for pages 2 and 3.

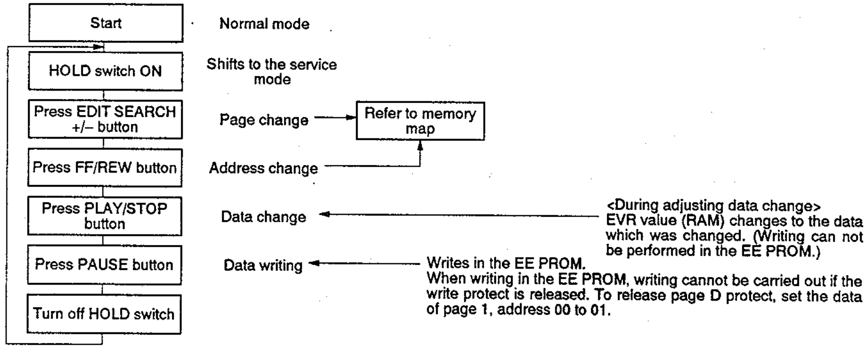
(Example)


Specification of
Page 2
Category 01
Address 47
Page 2 is the mode controller
Page 3 is the mechanism controller

The actual category and address are specified by the adjusting remote commander as follows.

Order	Page	Address	Data	Procedure
1	2	00	01	Select category 01 using the data of page 2, address 00. From here onwards, category 01 will be selected at page 2 until the data of page 2, address 01 is rewritten.
2	2	47		As the data of page 2, address 00 is 01, select page 2, address 47 to select page 2, category 01, address 47. (The data of this address is the battery voltage A/D conversion value of the mode controller input.)

[Shifting to the service mode using the adjusting remote commander]


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press EDIT SEARCH +/– button
Page change
Refer to memory map
Press FF/REW button
Address change
Press PLAY/STOP button
Data change
Press PAUSE button
Data writing
Turn off HOLD switch

<During adjusting data change>
EVR value (RAM) changes to the data which was changed. (Writing can not be performed in the EE PROM.)

Writes in the EE PROM.
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release page D protect, set the data of page 1, address 00 to 01.

Command Name	Command Function	Normal LANC Command
Page Up	Page+1	Edit Search+
Page Down	Page–1	Edit Search –
Direct Page Set	Sets to the specified page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address–1	Rewind
Data Up	Data+1	Play Back
Data Down	Data–1	Stop
Store	Writes data in the EEPROM, RAM	Pause

(3) Additional note on adjustment

After the completion of the all adjustments, cancell the adjustment mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) Return data of the address: 00 on page: 1 to 00. And when data on page: 2 is changed, return the data to the original condition.

2. Page D write protect

Release/set the page D write protect.

Page 1	Address 00

Data	Function
00	Normal (Write protect condition)
01	Release the write protect

3. Test mode setting

Set/release each test mode. Release the protect (Page: 1, Address: 00, Data: 01) before setting the data.

Page D	Address 02

Data	Function
00	Normal
01	Test mode 1 Various emergency prohibitions and releases Drum, capstan, loading motor, reel, tape top and end, DEW SP/LP automatic discrimination prohibition, manual switching, 5 minutes pause release prohibition Power off prohibition/release by battery end
02	Test mode 2 Not used
03	Test mode 3 Track shift Performs the track shift playback Rear lock distinction prohibition during PB SP/LP automatic discrimination prohibition, manual switching
04	Test mode 4 Rear lock mode Performs rear lock playback SP/LP automatic discrimination prohibition, manual switching

※ For page D, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (6.3 Vdc).

※ Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander.

4. Emergency code

Fault (error) symptoms can be checked.

Page D	Address E4

Last emergency code
……Last error code generated (This data will be renewed each time an error occurs.)

Page D	Address E8

2nd emergency code
……2nd error code generated

Page D	Address EC

First emergency code
……First error code generated

※ Be sure to rewrite the data of addresses E4, E8 and EC to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

Code	Error Condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Reel errors at other times
04	Capstan error
05	FG error during drum start up
06	PG error during drum start up
07	FG error during normal drum conditions
08	PG error during normal drum conditions
09	Phase error during normal drum conditions

5. Emergency mode

The operation mode can be checked during faults.

Page D	Address E5

Last emergency mode
……The operation mode when the last error is generated
(This data will be renewed each time an error occurs.)

Page D	Address E9

2nd emergency mode
……The operation mode when the 2nd error is generated

Page D	Address ED

First emergency mode
……The operation mode when the first error is generated

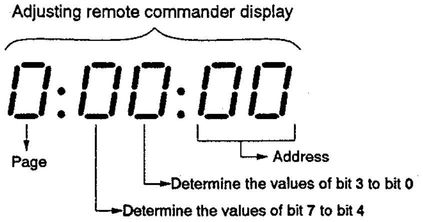
※ Be sure to rewrite the data of addresses E5, E9 and ED to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the adjusting remote commander after setting the data.

Code	Error Conditions
00	BEFOR INITIALIZE
01	EJECTED
02	NORMAL STOP
03	FF
04	NORMAL REC
06	NORMAL PB
07	PB PAUSE
12	LOADING
14	REC PAUSE
26	X1
27	1/5 SLOW
31	UNLOADING
46	CUE
56	REVIEW
62	STOP TAPE END
66	X2
67	FRAME
72	STOP TAPE TOP
83	REWIND
85	REC REVIEW (+)
95	REC REVIEW (–)
97	–PB PAUSE
A2	EMERGENCY LOADING
A5	EDIT SEARCH (+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH (–)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

6. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".


Adjusting remote commander display
0:00:00
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

Remote controller display	Bit value			
	bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
Ⓐ→ 8	1	0	0	0
9	1	0	0	1
A(A)	1	0	1	0
B(b)	1	0	1	1
C(c)	1	1	0	0
D(d)	1	1	0	1
Ⓑ→ E(E)	1	1	1	0
F(F)	1	1	1	1

(Example) If the remote commander display data is "8E", bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

7. Battery voltage check

Page 2	Category 01	Address 47

Display Data	Battery Voltage
F0	Approx. 10.6 Vdc
E0	Approx. 9.9 Vdc
D0	Approx. 9.2 Vdc
C0	Approx. 8.5 Vdc
B0	Approx. 7.8 Vdc
A0	Approx. 7.1 Vdc
90	Approx. 6.4 Vdc
80	Approx. 5.7 Vdc
70	Approx. 5.0 Vdc

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	47		The battery voltage can be discriminated by the display data.

※ Voltage measurement accuracy is approx. ± 10%.

8. Mechanism controller input/output check

Page 2	Category 00	Address 83

Bit	Input/Output Signal	Condition
0		
1	E/L DET	"1"=Hi8, "0"=Normal
2	SP/LP DET	"1"=SP, "0"=LP
3	CLOG DET	"1"=Clog detected, "0"=Others
4	REC PROOF	"1"=Recording prohibited, "0"=Recording possible
5	TAPE PREEND	"1"=Tape preend, "0"=Others
6	DEW DET	"0"=Condensation occured, "1"=Others
7	CASSETTE IN	"0"=No cassette

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	83		The condition of each input signal can be discriminated by differentiating the bit value of the display data.

Page 2	Category 00	Address 84

Bit	Input/Output Signal	Condition
0	VA PB MODE	"1"=PB, "0"=REC
1	RP PB MODE	"1"=PB, "0"=REC
2	JOG	"1"=Variable speed playback, "0"=Others
3	ME/MP SW	"1"=ME tape, "0"=Other tape
4	Hi8 MP SW	"1"=Hi8 MP tape, "0"=Other tape
5	SERVO OPERATION	"1"=SP mode, "0"=LP mode
6	VIDEO MUTE	"1"=Mute, "0"=Video output
7	AUDIO MUTE	"1"=Mute, "0"=Audio output

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	84		The condition of each signal can be discriminated by differentiating the bit value of the display data.

9. Mode switch and CC DOWN switch check

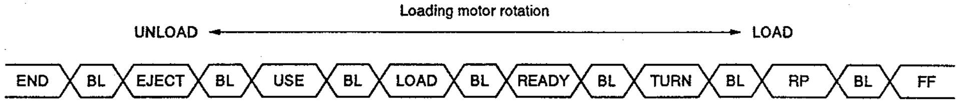
The mode switch position (mechanical section condition) can be checked.

Page 3	Category 00	Address E9

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
MSW 2	MSW 1	MSW 0	CC DOWN				

				DATA	POSITION	FUNCTION
0	0	0	0/1	E*/F*	BL	Interval of each position
0	1	1	1	7*	END	FULL END processing (T side lock removal)
0	0	1	1	3*	EJECT	Cassette compartment ejection
1	0	1	1	B*	USE	EJECTED (Unskate end)
0	0	1	0	2*	LOAD	LOADING (Skate in)
1	0	0	0	8*	READY	NORMAL STOP position
1	1	0	0	C*	TURN	OFF of pinch roller only with STOP↔FF/REW (oscillating position)
0	1	0	0	4*	RP	PB, REC, RVS, REV, CUE
0	0	0	0	0*	FF	FF/REW

*: Don't care



Using method:

Order	Page	Address	Data	Procedure
1	3	00	00	Specification of category 00
2	3	E9		The mode switch position and CC DOWN switch condition can be discriminated by the display data.

10. Tape top/end sensor check

Page 3	Category 02	Address 0A

Display Data	Tape Top/End Sensor Condition
00	Tape present (Middle of tape)
01	Tape end
10	Tape top
11	No tape

Tape end sensor condition
Tape top sensor condition

"0"=Non active (Not receiving light)
"1"=Active (Receiving light)

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	10	Request for tape top/end sampling operations
3	3	0A		The condition of the tape top/end sensor can be discriminated by the display data.

11. Version of mechanical control microprocessor

Page 3	Category 02	Address 0B

Display Data	Microprocessor version
01	Version 1

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0B		The microprocessor version can be discriminated by the display data.